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**HEALTH AND SAFETY PLAN
AMERICAN CHEMICAL SERVICE, INC.
OFF-SITE CONTAINMENT AREA
ENGINEERED COVER INSTALLATION
GRIFFITH, INDIANA**

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- D. ECI's Confined Space Entry Program**
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0.0 INTRODUCTION

This section of the site Health and Safety Plan (HASP) document defines general applicability and general responsibilities with respect to compliance with the health and safety program.

Scope and Applicability

The purpose of the site HASP is to define the requirements and designate protocols to be followed at the site during final cover installation activities. Applicability extends to all oversight contractors, installation contractors, subcontractors, government employees, and visitors. Before site operations begin, all employees involved in site activities will have been briefed on the Site HASP. A copy of the Plan and all revisions will be available for review by all employees. An agreement to comply with the requirements must be signed by all personnel prior to entering the work areas. Compliance with American Chemical Service, Inc. (ACS) Environmental Specifications (see Attachment J) will be strictly enforced.

The health and safety protocols established in this plan are based on site conditions and chemical hazards known and/or anticipated to be present from available site data. All personnel on site, contractors and subcontractors included, shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards pertaining to site operations. This HASP summarizes those hazards in Table 3.3.1 and defines protective measures planned for the site.

During development of the plan, consideration was given to current safety standards as defined by the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and the National Institute of Occupational Safety and Health (NIOSH), health effects and standards for known contaminants, and procedures designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

- OSHA 29 CFR 1910 and EPA 40 CFR 311
- OSHA 29 CFR 1926

- U.S. EPA, OERR ERT Standard Operating Safety Guides
- NIOSH, OSHA, USCG, EPA Occupational Health and Safety Guidelines
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values.

Visitors

All visitors entering the work areas, other than the contractor staging area, will be required to read and verify compliance with the provisions of the HASP. In addition, visitors will be expected to comply with relevant OSHA requirements such as medical monitoring (Section 1.0 of the HASP), training (Section 2.0 of the HASP), and respiratory protection (if applicable). Visitors will also be expected to provide their own protective equipment. In the event that a visitor does not adhere to the provisions of the HASP, they will be requested to leave the work area. All non-conformance incidents will be recorded in the site log.

Key Personnel and Organizational Structure

The following personnel and organizations are critical to the planned activities at the site. The organizational structure will be reviewed and updated periodically by the site supervisor.

Mike Joslin	Liner Manager	Mid America Lining
Todd Lewis	Project Manager	MWH
Rob Adams	Certifying Engineer	MWH
Mike McDaniels	Liner Supervisor	Mid America Lining
Eric Robertson	Liner QA/QC Representative	Mid America Lining
Daryl Streed	Project Manager	Environmental Contractors of Illinois, Inc.
Steve Palmer	Construction Foreman	Environmental Contractors of Illinois, Inc.
Randy Price	Health and Safety Officer	Environmental Contractors of Illinois, Inc.

Personnel Roles

Project Manager: The Project Manager has the primary responsibility for the fulfillment of the terms of the contract. He must oversee operations and ensure that all legal and safety requirements are met. It is his duty to keep the project on schedule, within budget and to communicate daily with the client regarding the progress toward specified goals.

Health and Safety Officer: The Health and Safety Officer (HSO) has total responsibility for ensuring that the provisions of the HASP are adequate and implemented in the field. The HSO shall have a working knowledge of local and federal occupational safety and health regulations, and shall provide health and safety training to the contractor and subcontractor employees. The HSO shall also oversee day-to-day industrial hygiene activities, including air monitoring, training, and daily site-safety inspections. The HSO shall be responsible for the use of monitoring and sampling equipment, interpretation of data required to implement the HASP, and to administer the elements of the HASP. The HSO shall be consulted before any

changes in the recommended work procedures or levels of personnel protective equipment are made.

Construction Superintendent/Foreman: The superintendent/foreman shall be responsible for enforcement of this program to all employees on his/her crew and to ensure that subcontractor employees are provided a safe place to work. The project superintendent is also responsible for the enforcement of accident/equipment damage by his crew.

Site Location & History

The ACS Site is located in Griffith Township, near the City of Griffith, Indiana. Operations began at the site in 1955 and involved the reclamation of spent solvent waste containing alcohols, ketones, esters, chlorinateds, aromatics, aliphatics and glycols. Since 1955, various other processes have been conducted at the site, including specialty chemical manufacturing in small batches, burning of still bottoms and non-reclaimable materials, epoxidation and bromination, and storage/blending of waste streams. Between 1988 and 1992, environmental investigative activities were conducted at the site that discovered subsurface environmental impacts to soil and groundwater at numerous areas of the site including the Off-Site Containment Area. These investigative activities also confirmed that this area had received waste material as an apparent extension of the former Griffith Township Landfill. In 1997, a 12-inch thick layer of clay was placed over the Off-Site Containment Area in an attempt to contain the contamination and prevent further migration into non-affected areas nearby. This area was cleared and reggraded in 2001, and the areas surrounding the Off-Site Containment Area received additional clay cover; however, the Off-Site Containment Area apparently maintained only its original 12-inch clay layer depth. The drawings and specifications show the site and proposed engineered liner installation activities to be performed.

Hazard Identification

The evaluation of hazards is based upon the knowledge of site background presented in Section 3.1, and anticipated risks posed by the specific site operations.

Physical Hazards. Physical hazards on site include insect, rodent, and reptile bites; slips, trips, and falls due to uneven terrain; the use of heavy equipment; the use of decontamination equipment; and potential heat and cold stress exist at the site. The following table illustrates potential physical hazards typically found at construction sites:

Table 0.1. PHYSICAL HAZARD ANALYSIS

1	Back Strain	Frequent rest periods, proper lifting techniques.
2	Irritation from Dust Generated by Heavy Equipment	Dust suppression.
3	Driving Vehicles, Placing Trailers	Proper safe driving techniques and use of safety equipment (seat belts).
4	Hazards Involved in Utility Hook-Up	Qualified personnel following safety regulations [29CFR1910/1926(k)].
5	Operation of Heavy Equipment	Trained operators following safety regulations (29CFR1910/1926).
6	Exposure to Irritant and Toxic Plants (poison ivy, etc.)	Proper clothing, recognition, first aid kit.
7	Uneven Ground Surface and Hidden Dangers	Alert behavior, "high top" leather boots.
8	Native Wildlife (rodents, ticks, snakes)	Avoid wildlife when possible; alert behavior, first aid equipment.
9	Heat or Cold Stress	Follow HASP for heat and cold, shift work hours, proper clothing and monitoring.
10	High Noise Levels	Ear muffs or plugs; avoid working in area when possible.
11	Vapor (CO) from Heavy Equipment	Well-ventilated areas, move away from exhaust sources.
12	Overhead Utilities	Observe minimum working distances from "live" overhead power lines.
13	Underground Utilities	Locate utilities (800 dig number), use hand tools when less than 18 inches.
14	Moving Parts (motors, blowers, etc.)	Avoid contact; secure loose clothing, hard hats and safety goggles. Tie back long hair, do not wear jewelry.

15	Hydraulic Lines and Air Lines on Heavy Equipment	Avoid contact, hard hats, safety glasses, and gloves. Frequent inspection.
16	Scaffolding and Ladders	Observe proper safety regulations; avoid working underneath, hard hats.
17	Hand Tools	Follow proper safety rules, hard hats, safety glasses, and gloves.
18	Crushing or Falling Objects	Steel toed leather boots, hardhat, safety glasses, gloves.
19	Material Flammability	No smoking will be allowed near material storage areas.

**SITE HAZARD ANALYSIS
ACO NPL SITE
GRIFFITH, INDIANA**

<i>Site Activity</i>	<i>Hazards</i>	<i>Prevention</i>
Mobilization and Demobilization	Physical injury from heavy equipment; slips, trips and falls due to uneven terrain.	Be aware of surroundings and stay a safe distance from heavy equipment.
Mobilization of Construction Facilities		Maintain eye contact with equipment operator. Wear steel-toed boots and hardhat.
Clearing of work areas	Insect, animal or reptile bites.	Wear insect repellent if required. Avoid contact with animals / reptiles.
Test Pad Construction		
Regrading of Off-Site Containment Area	Chemical: (Also see Chemical Hazard Section).	Wear appropriate PPE. Avoid direct contact with contaminated materials.
FML Installation		
Install Rooting Zone		
Placement of Black Dirt and Seeding		

1.0 WORKER MEDICAL SURVEILLANCE

Medical monitoring programs are designed to track the physical condition of employees on a regular basis as well as survey pre-employment or baseline conditions prior to potential exposures. The medical surveillance program shall be part of each employer's Health and Safety program. The medical examinations and surveillance shall be provided by a licensed occupational physician or physician's group. Medical surveillance shall be conducted and records maintained as required by 29 CFR 1910.120 and 29 CFR 1910.134.

1.1 BASELINE OR PREASSIGNMENT MONITORING

Prior to being assigned to a hazardous or a potentially hazardous activity involving exposure to toxic materials, each employee must receive a pre-assignment or baseline physical. The contents of the physical are to be determined by the employer's medical consultant. As suggested by NIOSH/OSHA/USCG/EPA's Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities, the minimum medical monitoring requirements for work at the site are as follows:

- Complete medical and work histories.
- Full physical examination.
- Pulmonary function tests.
- Chest X-ray (every two years).
- EKG.
- Eye examination and visual acuity including color perception.
- Audiometry.
- Urinalysis.
- Blood chemistry and heavy metals toxicology.
- Complete blood count with differential and platelet evaluation.
- Other site-specific medical monitoring as required by site-specific conditions.

If an employee passes the pre-assignment physical, the physician should issue a statement that the employee is fit for duty and able to wear respiratory protection.

1.2 PERIODIC MONITORING

In addition to a baseline physical, all employees require a periodic physical every 12 months unless the advising physician believes a shorter interval is appropriate. The employer's medical consultant should prescribe an adequate medical, which fulfills OSHA 29 CFR 1910.120 requirements. The pre-assignment medical exam outlined above may be applicable.

All personnel working in contaminated or potentially contaminated areas at the site will be required to be current with the annual physical exam. A physician's statement indicating date of last physical will be provided for each employee. This will confirm that site employees are current with the Medical Monitoring Program. Any site personnel who are not current with the Medical Monitoring Program will not be permitted on site. Any site personnel who become due for an annual physical exam will be removed from the site until the medical requirements are met.

1.3 EXPOSURE/INJURY MEDICAL

As a follow-up to an injury or possible exposure above established PELs, all employees are required to seek medical attention for evaluation. Depending upon the type of exposure, it is critical to perform follow-up testing within 24-48 hours. It will be up to the employer's medical consultant to advise the type of tests required to adequately monitor for exposure effects.

1.4 EXIT PHYSICAL

At termination of employment or reassignment to an activity or location that does not represent a risk of exposure to hazardous substances, an employee shall receive an exit physical. An exit physical may not be required for reassigned personnel who are part of the annual Medical Monitoring Program. If the last physical was within the last six months, the advising medical consultant has the right to determine adequacy and necessity of exit exam.

1.5 SUBSTANCE ABUSE PREVENTION PROGRAM

The purpose of this policy is to make absolutely clear ECI's policy regarding the work-related effects of drug use and the unlawful possession of controlled substances and alcohol on ECI premises. This rule also covers all legal or prescription drugs that may impair an employee's ability to perform his/her job. Our policy is as follows:

- * Employees are expected and required to report to work on time and in appropriate mental and physical condition. It is our intent and obligation to provide a drug-free, healthful, safe, and secure work environment.
- * The unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance or alcohol on company premises or while conducting company business off company premises is absolutely prohibited. Violations of this policy will result in disciplinary action, up to and including termination, and may have legal consequences.
- * Certain environmental projects may require drug screening or periodic drug testing as a condition of working at those sites. On these projects, ECI may elect to *implement random drug testing or a pre-screen test prior to working on site.*
- * Environmental Contractors recognizes that alcohol or other drug dependency is an illness and a major health problem. ECI also recognizes alcohol and drug abuse as a potential health, safety, and security problem. Employees who need help with substance abuse problems are encouraged to use employee assistance programs and health insurance plan benefits available through ECI or through the appropriate union welfare plan. Conscientious efforts to seek such help will not jeopardize any employee's job, and will not be noted in any personnel record.
- * Employees must, as a condition of employment, abide by the terms of this policy and must report any conviction under a criminal drug statute for violations occurring on or off ECI premises while conducting ECI business. Employees must report a conviction for such an offense within five (5) days after the conviction.

- * An employee reporting to work under the influence of drugs, narcotics, alcohol, or controlled substances is not to be permitted to begin work. Any employee discovered to be under the influence while on the job will be required to leave the premises and will be escorted home. If an employee refuses assistance in driving home, the Police or Sheriff's Department will be contacted immediately and the supervisor should call another management employee for assistance.
- * It is the policy of ECI to work with employees who acknowledge their alcohol or drug abuse problem and are willing to take positive and sincere corrective action. At the employee's request, the HR officer will make a referral for treatment. Payment for these services is covered under our major medical insurance plan as for any other illness. The plan covers an inpatient course of treatment. Employees covered under a union plan should consult the Plan Administrator to see if these services are covered. While the employee is in treatment, his/her job will be protected and he/she will be permitted to return to work immediately following discharge from the treatment. Failure to return will constitute a voluntary termination effective on the date of scheduled return. Drug and alcohol abuse/dependency are very personal matters and will, therefore, be treated confidentially.

2.0 WORKER TRAINING

Consistent with OSHA's 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response (HAZWOPER), all site personnel are required to be trained in accordance with the HAZWOPER standard. This includes an initial 40 hour or 8 hour training course covering the 29 CFR 1910.120 standards and annual refresher training. In addition, site personnel shall receive training covering the provisions of this HASP and any site-specific training required to safely complete site work. The training session shall be completed by the HSO.

2.1 OSHA TRAINING

2.1.1 Pre-Assignment and Annual Refresher Training

Prior to arrival on site, each employer will be responsible for certifying that their employees meet the requirements of pre-assignment training, consistent with OSHA 29 CFR 1910.120 paragraph (e)(3). The employer should be able to provide a document certifying that each site worker has received 40 hours of instruction off the site and three days of actual field experience under direct supervision of a Site Supervisor. If an individual employee has work experience and/or training that is equivalent to that provided in the initial training, an employer may waive the 40-hour training so long as that equivalent experience is documented or certified. All personnel must also receive 8 hours of refresher training annually. As a minimum, this training shall include the following:

- General Safety Rules
- Basic of Toxicology/Physiology
- Hazardous Materials
- Hazardous Communication Information
- Respiratory Training
- Chemical Protective Clothing
- Decontamination Procedures
- Fire Prevention/Protection
- First Aid/CPR
- Confined Space Work/Safety
- Atmospheric Testing/Sampling Procedures
- Emergency Response Procedures

- Electrical Hazard
- Federal and State Regulations

2.1.2 Site Supervisor Training

Consistent with OSHA 29 CFR 1910.120 paragraph (e)(8), individuals designated as site supervisors require an additional 8 hours of training.

The following individuals are identified as site supervisors:

Daryl Streed	Project Manager
Steve Palmer	Construction Superintendent
Randy Price	Health & Safety Officer

2.1.3 Training and Briefing Topics

The following items will be discussed by a qualified individual at the site pre-entry briefing(s) or periodic site briefings.

1. Air Monitoring, Section 7.0 (29 CFR 1910.120).
2. Chemical Hazards, Table 3.3.2.
3. Emergency Response Plan, Section 10 [29 CFR 1910.120 (1)].
4. Engineering Controls and Work Practices.
5. Forklift [29 CFR 1910.178(e)].
6. Handling Drums and Containers [29 CFR 1910.120(j)].
7. Heavy Machinery.
8. Illumination [29 CFR 1910.120 (m)].
9. Ladder (29 CFR 1910.25-27).
10. Medical Surveillance Requirements.
11. Overhead and Underground Utilities.
12. Personnel Protective Equipment (Section 5.0).
13. Physical Hazards (Table 3.3.3).
14. Respiratory Protection (Section 5.0).

15. Sanitation [29 CFR 120 (n)].
16. Site Control (Section 8) [29 CFR 1919.120(d)].
17. Spill Containment (Section 12.0) [29 CFR 1910.120(b)(4)(j)].
18. Symptoms of Overexposure to Hazards.
19. Tools (29 CFR 1910.242-247).
20. Training Requirements (section 3.0) [29 CFR 1910.120(e)].

In addition, daily “Tailgate/Safety Meetings” will be held to discuss the current task-hazards, and health and safety topics related to site operations. The meeting notes will be recorded on the Tailgate/Safety meeting Log forms.

2.2 SITE-SPECIFIC TRAINING

All personnel who will be or are expected to be working on the site will attend a Health and Safety meeting prior to beginning work at the site. This site-specific training, conducted by the Health and Safety Officer, will cover site background information, the scope of work for the Time-Critical Action response activities, hazard identification, the use of safety equipment, emergency response procedures, and other training relating to site-specific operations. Overall, the provisions of the HASP will be covered. The following information will be covered during the site-specific health and safety meeting:

- Names and personnel responsible for site health and safety.
- Site-specific potential hazards.
- Use of PPE, including proper donning and doffing procedures.
- Work practices by which the employee can minimize risks from site-specific potential hazards.
- Confined space entry procedures (if confined space work is to be performed).
- Safe use of engineering controls and on-site equipment.
- Discussion and completion of medical surveillance requirements and recognition of symptoms associated with exposure to hazards.
- Site control methods.
- On-site and off-site Contingency and Emergency Response Plans.

- Decontamination procedures.
- Site-specific standard operating procedures.
- Delineation between work zones.
- Use of the buddy system.
- Scope of the intended work for contract.
- Review on-site communications and appropriate hand signals between personnel working in Exclusion Zone and/or Contaminant Reduction Zone.
- The content of OSHA standards, including the Appendices.

2.3 HAZARD COMMUNICATION PROGRAM

In order to comply with 29 CFR 1910.1200, Hazard Communication, a written Hazard Communication Program has been established. As part of our company policy, all employees will be briefed on this program, and a written copy will be available for review. The following parts of the Hazcom Program will apply to site activities:

2.3.1 Employee Training and Information

Prior to starting work, each employee will attend a health and safety orientation and will receive information and training on the following: (1) an overview of the requirements contained in the Hazard Communication Standard, 29 CFR 1910.1200; (2) chemicals present in their workplace operations; (3) location and availability of a written hazard program; (4) physical and health effects of the hazardous chemicals; (5) methods and observation techniques used to determine the presence or release of hazardous chemicals; (6) how to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment; (7) emergency procedures to follow if they are exposed to these chemicals; (8) how to read labels and review MSDSs to obtain appropriate hazard information; (9) location of MSDS file and location of hazardous chemical list.

2.3.2 Material Safety Data Sheets (MSDSs)

Copies of MSDSs for all hazardous chemicals known or suspected on site will be maintained in the work area. MSDSs will be available to all employees for review during each work shift.

2.3.3 Container Labeling

All containers received on site will be inspected to ensure the following: (1) all containers will be clearly labeled as to the contents; (2) the appropriate hazard warnings will be noted; and (3) the name and address of the manufacturer will be listed.

All secondary containers will be labeled with either an extra copy of the original manufacturer's label or with generic labels that have a block for identity and blocks for the hazard warning.

3.0 SITE TRAFFIC CONTROL

Designated work areas will be set up prior to startup of site operations. The purpose of designating work zones is to limit access to potentially contaminated areas, and to prevent the migration of potentially hazardous materials into adjacent non-contaminated areas. Each zone will be clearly marked. Strict adherence to these zones will prevent contamination of clean areas and will limit hazardous materials within the contaminated zone

The work zones will include an Exclusion Zone (EZ), a Contaminant Reduction Zone (CRZ), and a Clean Zone (CZ). See Attachment B for the site layout depicting the work zones. The preliminary designation and description of each work zone is listed below.

1. *The Exclusion Zone (EZ)* is the area immediately surrounding the active work area. Sufficient area will be provided around each work area for efficient movement of personnel and equipment as well as contaminant control. The EZ will be separated from the CRZ with caution tape. The HSO will be responsible for establishing the boundaries of this area. Personnel entering this area are required to wear the PPE as defined in Section 7.0. A wind direction indication device (i.e., flagging, windsock, etc.) will be mounted in the area of any EZ during site activities.

All personnel (including visitors) entering the EZ using respiratory protection must have successfully passed a qualitative respirator fit test in accordance with OSHA 29 CFR 1910.134. Documentation of FIT testing is the responsibility of each employer. Documentation must be presented prior to entry to the EZ.

In the event that unauthorized personnel enter the EZ, work will stop. Work will not resume until the unauthorized personnel have been removed from the EZ or have been moved to an acceptable on-site area. A log of all visitors to the site, including those entering the EZ, will be maintained. Personnel will sign in prior to entry

2. *The Contaminant Reduction Zone (CRZ)* will provide a location for removal of contaminated PPE and decontamination of personnel and equipment. It will serve as a corridor from the EZ to the CZ. Both personnel and equipment will require thorough decontamination before they are allowed to pass through the CRZ to the CZ, if they have had contact with contaminated material. Equipment and personnel will go through separate decon areas on the boundary of the EZ/CRZ. The HSO in coordination with the Superintendent will enforce that proper decontamination procedures are conducted. Prior to leaving the site, the equipment will be decontaminated and a record of decon will be made in the Equipment Log.

A CRZ will be established on the perimeters of the Off-Site Containment Area as shown in Attachment B. These CRZs will consist of personal decontamination stations and dry/wet equipment decontamination pads. The equipment decontamination pads will consist of an impermeable plastic liner covered with gravel and sloped for positive drainage to a collection sump. A portable high pressure washer will be used in conjunction with hand tools to remove any contaminated material from each piece of equipment prior to leaving the EZ. The pad will be constructed to control and contain any cleaning fluid used. The spent water will be containerized for treatment or disposal at an offsite licensed facility

3. *The Clean Zone (CZ)* will be situated in a clean area where there is a minimal risk of encountering hazardous materials or conditions. It will serve as an entry or staging area for equipment and personnel to the CRZ. It will also serve as an exit area for personnel, equipment, and materials from the CRZ. PPE beyond standard construction safety equipment is therefore not required in the CZ. Office trailers will be located in the CZ. These trailers will be used as support facilities for meetings and site oversight.

4.0 PERSONAL HYGIENE/DECONTAMINATION FACILITY

4.1 DECONTAMINATION FACILITY

A personal hygiene/decontamination facility will be provided in accordance with 29 CFR 1910.141. The decontamination station will consist of a decon tarp, a lined disposal drum, decon pool(s), buckets, hoses, brushes, and a water source. Personnel providing decontamination shall be equipped with the appropriate splash protective clothing (splash suit, inner gloves, outer gloves taped to the suit, disposable latex boot covers, goggles and a hard hat). The location of the decontamination facilities is in the CRZs, as indicated on the site layout plan (Attachment B).

4.2 COLLECTION/DISPOSAL OF WATER AND WASTES

Wastewaters will be collected from the personal decontamination facility and pumped into designated wastewater storage tanks or drums on a daily basis. The wastewater storage tanks or drums will be properly labeled. Wastewater from decontamination of personnel (e.g., hand basins and shower facilities) will be stored separately from toilet facilities.

5.0 EQUIPMENT DECONTAMINATION PLAN

5.1 EQUIPMENT DECONTAMINATION

All construction equipment potentially coming into contact with hazardous constituents shall be decontaminated before leaving the CRZ. Equipment shall be considered as having the potential to come in contact with a hazardous materials if it (1) has been used to excavate contaminated materials or (2) comes into contact with surface water or groundwater

An equipment decontamination facility will be located in each of the CRZs. The equipment decontamination pads will consist of an impermeable plastic liner covered with gravel and sloped for positive drainage to a collection sump. A portable high pressure washer will be used in conjunction with hand tools to remove any contaminated material from each piece of equipment prior to leaving the EZ. The pad will be constructed to control and contain any cleaning fluid used. The spent water will be containerized for treatment or disposal at an offsite licensed facility

The decontamination of heavy equipment will consist of the following procedures:

- (1) Mechanically remove packed dirt, grit, and debris by scraping and brushing without the use of steam or high-pressure water to reduce the amount of water needed and to reduce the amount of contaminated rinsate generated.
- (2) Use high-pressure, low-volume water or steam supplemented by Alconox, if necessary.
- (3) Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages.
- (4) Scrub surfaces with long handle scrub brushes and a cleaning agent, if necessary.
- (5) Rinse off and collect cleaning agent.
- (6) Air dry equipment in the Clean Zone before removing from site or travel on clean areas.
- (7) Perform an assessment to determine the effectiveness of the decontamination.
- (8) Record the time and date of the decon activities in the Equipment Log form.

See Attachment C for a copy of the Equipment Log form.

5.2 DISPOSITION OF DECONTAMINATION WASTES

Sufficient pumping equipment and piping (to pump all wastewater from the equipment decontamination facility to construction contractor-supplied designated wastewater storage tanks) will be supplied.

Sediments generated from the decontamination of equipment will be collected from the equipment decontamination sump and transferred to the drainage pad facility or to the staging pad facility, as appropriate.

6.0 CONFINED SPACE ENTRY PROCEDURES

Access into confined space is not anticipated during construction of the engineered cover of the Off-Site Containment Area. However, if confined space entry does become necessary, the following addresses the associated health and safety concerns.

A confined space provides the potential for unusually high concentrations of contaminants, explosive atmospheres, limited visibility, and restricted movement. This section will establish requirements for safe entry into, continued work in, and safe exit from confined spaces. Additional information regarding confined space entry can be found in 29 CFR 1926.21, 29 CFR 1910.146, and NIOSH 80-106.

Entry into confined spaces will be restricted to authorized personnel, and will be limited or prohibited if they are not necessary. Authorized entries will be required to follow the confined space entry permit system (239 CFR 1910.146). See Attachment D for a copy of ECI's Confined Space Entry Program.

6.1 DEFINITIONS

Confined Space: A space or work area not designed or intended for normal human occupancy, having limited means of egress, and poor natural ventilation.

Confined Space Entry Permit (CSEP): A document to be initiated by the supervisor of personnel who are to enter into or work in a confined space. The Confined Space Entry Permit (CSEP) will be completed by the personnel involved in the entry and approved by the HSO before personnel will be permitted to enter the confined space. The CSEP shall be valid only for the performance of the work identified and for the location and time specified. The beginning of a new shift with change of personnel will require the issuance of a new CSEP.

Confined Space Observer: An individual assigned to monitor the activities of personnel working within a confined space. The confined space observer monitors and provides

external assistance to those inside the confined space. The confined space observer summons rescue personnel in the event of emergency and assists the rescue team. The Confined Space Observer shall be certified in CPR and first aid.

6.2 GENERAL PROVISIONS

- When possible, confined spaces should be identified with a posted sign which reads:
Caution - Confined Space.
- Only personnel trained and knowledgeable of the requirements of these Confined Space Entry Procedures will be authorized to enter a confined space or be a confined space observer.
- A Confined Space Entry Permit (CSEP) must be issued prior to the performance of any work within a confined space. The CSEP will become a part of the permanent and official record of the site.
- Natural ventilation shall be provided to the confined space prior to initial entry and for the duration of the CSEP. Positive/forced mechanical ventilation may be required. However, care should be taken to not spread contamination outside of the enclosed area.
- If flammable liquids may be contained within the confined space, explosion proof equipment shall be used. All equipment shall be positively grounded.
- The contents of any confined space shall, where necessary, be removed prior to entry. All sources of ignition must be removed prior to entry.
- Hand tools used in confined spaces shall be in good working condition, explosion proof, spark proof, and selected according to the intended use. Where possible, pneumatic power tools should be used.
- Hand-held lights and other illumination utilized in confined spaces shall be equipped with guards to prevent contact with the bulb and must be explosion proof.
- Compressed gas cylinders, except cylinders used for self-contained breathing apparatus, shall not be taken into confined spaces.

- If a confined space requires respiratory equipment or where rescue may be difficult, safety belts, body harnesses, and lifelines shall be used. The outside observer shall be provided with the same equipment as those working within the confined space.
- A ladder is required in all confined spaces deeper than the employee's shoulders. The ladder shall be secured and not removed until all employees have exited the space.
- Only self-contained breathing apparatus or ANSI approved airline respirators equipped with a 5-minute emergency air supply (egress bottle) shall be used in untested confined spaces or in any confined space with conditions determined immediately dangerous to life and health.
- Where air-moving equipment is used to provide ventilation, chemicals shall be removed from the vicinity to prevent introduction into the confined space.
- Vehicles or other sources of exhaust emissions shall not be left running near confined space work or near air-moving equipment being used for confined space ventilation.
- Smoking in confined spaces will be prohibited at all times.
- Any deviation from these Confined Space Entry Procedures requires the prior permission of the HSO.

6.3 PROCEDURES FOR CONFINED SPACE ENTRY

The HSO and Entry Team shall:

- Evaluate the job to be done and identify the potential hazards before a job in a confined space is scheduled.
- Ensure that all process piping, mechanical and electrical equipment, etc., have been disconnected, purged, blanked-off, or locked and tagged as necessary.
- If possible, ensure removal of any standing fluids that may produce toxic or air displacing gases, vapors, or dust.
- Initiate a Confined Space Entry Permit (CSEP) in concurrence with the project manager or designated alternative.

- Ensure that any hot work (welding, burning, open flames, or spark producing operation) that is to be performed in the confined space has been approved by the HSO and is indicated on the CSEP.
- Ensure that the space is ventilated before starting work in the confined space and for the duration of the time that the work is to be performed in the space.
- Ensure that entry personnel, confined space observer, and helper are familiar with the contents and requirements of the CSEP.
- Conduct remote atmospheric testing of the confined space prior to employee entry and before validation/revalidation of a CSEP to ensure the following:
 1. Oxygen content between 19.5% - 23.0%.
 2. No concentration of combustible gas in the space. Sampling will be done throughout the confined space and specifically at the lowest point in the space.
 3. The absence of other atmospheric contaminants such as toxic, corrosive, or irritant gases.
 4. If remote testing is not possible, Level B PPE is required.
- Designate whether hot work will be allowed. Complete the CSEP listing any safety precautions, protective equipment, or other requirements.
- Ensure that a copy of the CSEP is posted at the work site, a copy is filed with the project supervisor, and a copy is furnished to the project manager.
- Continuous monitoring for O₂ level, explosive gas, and toxic gases will be performed during work in the confined space.
- Entry personnel shall be equipped with the appropriate equipment including a full body harness, retrieval line, retrieval device, appropriate PPE, and explosion-proof and portable lighting.

The CSEP shall be considered void if work in the confined space does not start within one hour after the tests are performed, or if significant changes within the confined space atmosphere or scope of work occurs. The CSEP posted at the work site shall be removed at the completion of the job or the end of the shift, whichever is first.

6.4 CONFINED SPACE OBSERVER

- While personnel are inside the confined space, a confined space observer will monitor the activities and provide external assistance to those in the space. The observer will have no other duties that may take his attention away from the work or require him to leave the vicinity of the confined space at any time while personnel are in the space.
- The confined space observer shall be trained in first aid and CPR, and shall be stationed at the access opening of a confined space while it is occupied.
- The confined space observer shall maintain at least voice contact with all personnel in the confined space. Visual contact is preferred, if possible.
- The observer shall be instructed by his supervisor in the method for contacting rescue personnel in the event of an emergency.
- If irregularities within the space are detected by the observer, personnel within the space will be ordered to exit.
- In the event of an emergency, the observer must NEVER enter the confined space prior to contacting and receiving assistance from a helper. Prior to this time, he should attempt to remove personnel with the lifeline and to perform all other rescue functions from outside the space.
- A helper shall be designated to provide assistance to the confined space observer in case the observer must enter the confined space to retrieve personnel.
- The confined space observer shall have immediate access to the following equipment:
 1. Level B Respiratory Equipment
 2. Life lines with full body safety harness.
 3. Battery-powered portable light.
 4. Portable air horn.

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

This section describes the general requirements of the EPA designated Levels of Protection (A-D), and the specific levels of protection required for each task at the site.

7.1 LEVELS OF PROTECTION

Personnel wear protective equipment when site activities involve known or suspected atmospheric contaminate vapors, gases, or particulates, or when direct contact with skin-affecting substances may occur. Full facepiece respirators protect the lungs, gastrointestinal tract, and eyes against airborne contaminants. Chemical-resistant clothing protects the skin from contact with skin-destructive and absorbable chemicals.

The specific levels of protection and necessary components for each have been divided into four categories according to the degrees of protection afforded:

- Level A: Should be worn when the highest level of respiratory, skin, and eye protection is needed.
- Level B: Should be worn when the highest level of respiratory protection is needed, but when a lesser level of skin protection is needed. Level B is the primary level of choice when encountering unknown environment.
- Level C: Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is needed.
- Level D: Should be worn only as a work uniform and not in any area with respiratory or skin hazards. It provides minimal protection against chemical hazards.

Modifications of these levels are permitted, and routinely employed during site work activities to maximize worker efficiency and safety. For example, Level C respiratory

protection and Level D skin protection may be required for a given task. Likewise the type of chemical protective ensemble (i.e., material, format) will depend upon contaminants and degrees of contact. The level of PPE should be based on an evaluation of the type of chemicals, air-monitoring data, and the specific work tasks.

The Level of Protection selected is based upon the following site-specific factors:

- Type and measured concentration of the chemical substance in the ambient atmosphere and its toxicity.
- Potential for exposure to substances in air, liquids, or other direct contact with material due to work being done.
- Knowledge of chemicals on-site along with properties such as toxicity, route of exposure, and contaminant matrix.

In situations where the type of chemical, concentration, and possibilities of contact are not known, the appropriate Level of Protection must be selected based on professional experience and judgment until the hazards can be better identified. The EPA recommends that Level B PPE be used in these situations.

PPE will be maintained in clean sanitary condition and ready for use. Disposable coveralls shall be discarded when torn and as personnel leave the contaminated work zone. Hard hats shall be thoroughly cleaned after leaving the contaminated work zone. Respirators shall be cleaned after each day's use and cartridges discarded. A sufficient quantity of potable water shall be supplied for washing, cleaning PPE, and drinking. A potable water supply for washing and cleaning PPE will be maintained adjacent to the decontamination area. Fresh potable water for drinking will be supplied on a daily basis and be maintained at a location removed from the active work area.

The work tasks identified for the site activities are anticipated to be in Levels C and D PPE. However, the following lists the types of equipment required for Levels A through D.

7.1.1 Level A Personal Protective Equipment

- Supplied-air respirator approved by the National Institute for Occupational Safety and Health (NIOSH). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA), or positive pressure-demand, airline respirator (with escape bottle for IDLH or potential for IDLH atmospheres).
- Fully encapsulating chemical-resistant suit.
- Coveralls.
- Long cotton underwear.
- Gloves (inner).
- Boots, chemical-resistant, steel toe and shank (depending on suit construction, worn over or under suit boot).
- Hard hat (under suit).
- Disposable gloves and boot covers (worn over fully encapsulating suit).
- Cooling unit.
- Two-way radio communications (intrinsically safe).

7.1.2 Level B Personal Protective Equipment

- Supplied-air respirator (MSHA/NIOSH approved). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA), or positive pressure-demand, airline respirator (with escape bottle for IDLH or potential for IDLH atmosphere).
- Chemical-resistant clothing (coveralls and long-sleeved jacket; hooded, one or two-piece chemical-splash suit; disposable chemical-resistant, one-piece suits)
- Long cotton underwear.
- Coveralls.
- Gloves (outer), chemical-resistant.
- Gloves (inner), chemical-resistant.
- Boots (outer), chemical-resistant, steel toe and shank.
- Boot covers (outer), chemical-resistant (disposable).

- Hard hat (face shield).
- Two-way radio communications (intrinsically safe).

7.1.3 Level C Personal Protective Equipment

- Air-purifying respirator, half-face or full-face, cartridge-equipped (MSHA/NIOSH approved).
- Chemical-resistant clothing (coveralls; hooded, one-piece or two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls).
- Long cotton underwear.
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant, disposable
- Boots (outer), chemical-resistant, steel toe and shank
- Boot covers (outer), chemical-resistant (disposable)
- Hard hat (face shield)
- Two-way radio communications (intrinsically safe)
- Safety glasses

7.1.4 Modified Level D Personal Protective Equipment

- Tyvek coveralls
- Boots, chemical-resistant, steel toe and shank
- Disposable inner gloves - chemical resistant
- Outer gloves-chemical resistant
- Safety glasses
- Hard hat (face shield)
- Air Purifying Respirator (readily available if upgrade required)

7.1.5 Level D Personal Protective Equipment

- Coveralls (work clothes)
- Gloves (as necessary)
- Boots/shoes, leather or chemical-resistant, steel toe and shank

- Safety glasses
- Hard hat (splash shield, if necessary)

7.2 REASSESSMENT OF PROTECTION PROGRAM

The Level of Protection provided by PPE shall be upgraded or downgraded based upon a change in site conditions or site monitoring data. The HSO and resident engineer shall be consulted before any changes or modifications in levels of PPE are made. A written notice of change in the level of PPE required for a certain task will be submitted prior to implementation of that change.

When a significant change occurs, the hazards should be reassessed. Some indicators of the need for reassessment are:

- Commencement of a new work phase, such as the start of drum sampling or work that begins on a different portion of the site.
- Change in job tasks during a work phase.
- Change of season/weather.
- When temperature extremes or individual medical considerations limit the effectiveness of PPE.
- Contaminants other than those previously identified are encountered.
- Change in ambient levels of contaminants or air-monitoring data.
- Change in work scope that affects the degree of contact with contaminants.

7.3 WORK MISSION DURATION

Before the workers actually begin work in their PPE ensembles, the anticipated duration of the work mission should be established. Several factors may limit mission length, including:

- Air supply consumption (SCBA use).
- Suit/Ensemble permeation and penetration rates for chemicals.
- Ambient temperature and weather conditions (heat stress/cold stress).
- Capacity of personnel to work in PPE.

The anticipated work duration for Level D and Level C is a 10 hour day with 15 minute breaks at 9:00 and 2:00 and a half-hour break at 12:00. All rest breaks will be taken in a clean area (e.g., Clean Zone) after full decontamination and PPE removal. Additional rest breaks will be observed, based upon the heat stress monitoring guidelines.

7.4 ANTICIPATED PPE LEVELS FOR SPECIFIC WORK TASKS

The following specific PPE materials are recommended for each work task:

Site Mobilization and Trailer Placement, Seeding, Cap Inspection, Fill Placement, Fencing, Land Surveying, Cap Covering, Placement of Protective Liner Bedding, Clearing and Grubbing, Liner work (Level D)

When:

- PID readings are demonstrated to be less than 20ppm,
- Dust readings are less than 5 mg/m³ (respirable) or 15 mg/m³ (total).

Inner Gloves	NA
Outer Gloves	Leather/Cotton (optional)
Boots	Steel Toe and Shank, Leather Upper
Boot Covers	NA
Outer Garment/Coveralls	Work Uniform
Other Miscellaneous:	Safety Glasses, Hard Hat, face shield, goggles, hearing protection (heavy equipment operation).

Liner Anchor Trench Installation (Level D or D modified).

When:

- PID readings are demonstrated to be less than 20 ppm,
- Respirable dust readings are less than 5 mg/m³.

Inner gloves	Disposable Latex
Outer gloves	Nitrile Outer Gloves (optional)
Boots	Steel Toe and Shank, Leather Upper
Boot Covers	Disposable Latex
Outer Garment/Coveralls	Tyvek/Polytyvek Coveralls
Other Miscellaneous:	Safety Glasses/Splash Shields
	Air Purifying Respirator (available if necessary)
	Organic Vapor and Particulate Cartridges
	Hard Hat
	Two-Way Radio

Compaction/Backfilling (No Waste Exposed) (Level D).

Inner gloves	Disposable Latex
Outer gloves	(optional)
Boots	Steel Toe and Shank, Leather Upper
Boot Covers	(optional)
Outer Garment/Coveralls	(optional)

Other Miscellaneous:	Safety Glasses/Splash Shields
	Hard Hat
	Two-Way Radio

7.5 SOPs FOR PERSONAL PROTECTIVE EQUIPMENT

Proper inspection of PPE features several sequences depending upon specific articles of PPE and the frequency of use. The different levels of inspection are as follows:

- Inspection and operational testing of equipment received from the factory or distributor.
- Inspection of equipment as it is issued to workers.
- Inspection after use or training and prior to maintenance.
- Periodic inspection of stored equipment.
- Periodic inspection when a question arises concerning the appropriateness of selected equipment, or when problems with similar equipment arise.

The primary inspection of PPE will occur prior to immediate use and will be conducted by the user. This ensures that the specific device or article has been checked-out by the user that the user is familiar with its use. Reusable gloves, boots or coveralls exhibiting any of the characteristics listed in Table 7.1 (page 28) will be discarded. PPE used in areas known or suspected to exhibit elevated concentrations of contaminants will not be reused unless thoroughly decontaminated.

Additional PPE standard operating procedures include the following:

1. When using disposable coveralls, don a clean, new garment after each rest break or at the beginning of each shift.

2. Ankles/wrists will be secured tightly with the use of duct tape.
3. Prescription eye wear used on site shall be safety glasses equipped with side shields when full-face respirators are not required. Contact lenses shall not be used.
4. All EZ workers will have received training in the usage of full-face air purifying respirators and self-contained breathing apparatus that may be required in an emergency.
5. Steel toe leather footwear shall be covered with latex overboots prior to entering the EZ and removed immediately upon entering the CRZ.
6. Safety footwear and hard hats are to be worn by site personnel at all times. During installation of liner, only smooth bottom shoes will be worn by installation/inspection personnel. Liner surfaces will be kept dry to avoid slips and falls.
7. Familiarize themselves with this HASP.
8. Use the "buddy system" when working in a contaminated operation.
9. Use the safety equipment in accordance with training received, labeling instructions, and common sense.
10. Maintain safety equipment in good condition and proper working order.
11. Refrain from activities that would create additional hazards (i.e., smoking, eating, etc., in restricted areas, contact with contaminated materials).
12. Smoking and eating will be prohibited except in designated areas. These designated areas may change during the duration of the project to maintain adequate separation from the active work area(s). Designation of these areas will be the responsibility of the HSO.
13. Soiled disposable outerwear shall be removed and placed into a covered container prior to washing hands and face, eating, using lavatory facilities or leaving the site.

SAMPLE PPE INSPECTION CHECKLIST

Table 7.1

CLOTHING

Before use:

- Determine that the clothing material is correct for the specified task at hand.
- Visually inspect for:
 - imperfect seams
 - non-uniform coatings
 - tears
 - malfunctioning closures
- Hold up to light and check for pinholes.
- Flex product:
 - observe for cracks
 - observe for other signs of shelf deterioration
- If the product has been used previously, inspect inside and out for signs of chemical attack:
 - discoloration
 - swelling
 - stiffness

During the work task:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.
- Closure failure.
- Tears.
- Punctures.
- Seam Discontinuities.

Table 7.1 (Continued)

GLOVES

Before use:

- Visually inspect for:
 - imperfect seams
 - tears
 - non-uniform coating
 - pressurize glove with air; listen for pin-hole leaks.

8.0 PERSONAL HYGIENE/DECONTAMINATION PLAN

8.1 DECONTAMINATION PROCEDURES

Decontamination involves the orderly controlled removal of contaminants. The first priority in personal decontamination is to establish Standard Operating Procedures (SOPs) that minimize contact with contaminated materials that will in turn minimize decontamination efforts. This should be especially true for heavy equipment operators who should have no or minimal contact with contaminated materials. Nevertheless, most of the work on site involving contaminated areas will be completed in Level D PPE. ECI plans to use disposable PPE (including gloves, covers, and suits). This will eliminate the need for extensive decon activities. Typical decon activities will consist of the following:

1. Equipment Drop
2. Removal of Outer Boot Covers and Gloves
3. Removal of Suit
4. Face Piece Removal
5. Removal of Inner Gloves
6. Thorough Wash of Hands and Face

Used PPE will be placed in a lined drum in the tarped personal decon area. The inside-out decon technique will be used to avoid contact with contaminated surfaces. If contamination has breached the PPE, or if reusable PPE is used, a more extensive seven-step decontamination procedure will be followed. It would consist of the following procedures and stations:

1. Equipment Drop

Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.

- | | |
|--|--|
| 2. <i>Outer Garment, Boots, and Gloves Wash and Rinse</i> | Scrub outer boots, outer gloves and splash suit with decon solution or detergent water. Rinse off using copious amounts of water. |
| 3. <i>Outer Boot and Glove Removal</i> | Remove outer boots and gloves, Deposit in container with plastic liner. |
| 4. <i>Canister or Mask Change</i> | If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty. |
| 5. <i>Boot, Gloves and Outer Garment Removal</i> | Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic. |
| 6. <i>Face Piece Removal</i> | Face piece is removed. Avoid touching face with fingers. Face piece deposited on plastic sheet. |
| 7. <i>Field Wash</i> | Hands and face are thoroughly washed. Shower as soon as possible. |

If emergency conditions arise on site which require Level A or Level B PPE, the following 18-step decontamination procedures should be followed:

- Step 1: Segregated equipment drop
- Step 2: Boot cover and glove wash
- Step 3: Boot cover and glove rinse
- Step 4: Tape removal - boot and glove
- Step 5: Boot cover removal
- Step 6: Outer glove removal
- Step 7: Suit/safety boot wash
- Step 8: Suit/safety boot rinse
- Step 9: Safety boot removal
- Step 10: Fully encapsulating suit and hard hat removal
- Step 11: SCBA backpack removal
- Step 12: Inner glove wash
- Step 13: Inner glove rinse
- Step 14: Face piece removal

- Step 15: Inner glove removal
- Step 16: Inner clothing removal
- Step 17: Field wash
- Step 18: Redress

8.2 EMERGENCY DECONTAMINATION PROCEDURES

Remove protective gear, if possible, without causing injury. Cut out of PPE if heat stress is likely. The steps of decontamination should not consume time during a life-threatening emergency such as tornado, heart attack, etc.

8.3 DISPOSITION OF DECONTAMINATION WASTES

Personal decontamination will be conducted within a contained area. Wastewaters may be pumped from this area into drums or a tank for proper disposal. All equipment and solvents used for decontamination shall be decontaminated or disposed of properly off-site at a licensed facility. All PPE soiled by site hazardous waste materials shall be given to MWH for disposal.

Once decontamination activities are complete, personnel shall move through the CRZ to a support trailer or the clean zone. Site personnel will be required to follow proper personal decontamination procedures. Any personnel who disregard the decon procedures will be issued a written notice of violation. Upon the issuance of a second notice of such violation, the worker will be terminated from employment at the site.

8.4 SAFE WORK PRACTICES/PERSONAL HYGIENE

The following standard operating procedures and standing orders will be followed to facilitate safe work practices:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated contaminated. Designation of eating areas will be the responsibility of the HSO. The location of these areas may change during the project.
- Smoking at the site is prohibited except in specifically designated areas.

- Hands and face shall be thoroughly washed on leaving the work area before eating, drinking and smoking, and before using toilets. Good personal hygiene practices will be followed.
- Whenever decontamination procedures for outer garments are in effect, the entire body shall be thoroughly washed as soon as possible after the protective garment is removed.
- No facial hair, which interferes with a satisfactory fit of the mask-to-face-seal, is allowed on personnel required to wear respirators.
- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, walking through puddles, leachate, discolored surface, kneeling on ground, leaning, sitting or placing equipment on drums, containers, or the ground should be avoided.
- Individuals getting wet to the skin with effluent from the washing operation must wash the affected area immediately. If clothes in contact with skin are wet, then these must be changed.
- All disposable coveralls and soiled gloves will be disposed of in covered containers at the end of every shift or sooner, if deemed necessary by the HSO. Waste will be sorted until such time that it is properly disposed of during completion of Time-Critical Action response activities.
- Medicine and alcohol can potentiate the effects from exposure to toxic chemicals. Personnel should not take prescribed drugs on site where potential for absorption, inhalation or ingestion of toxic substances may exist in the subsurface environment unless specifically approved by a qualified physician. Alcoholic beverage consumption is forbidden on the Site.
- All personnel must be familiar with standard operating procedures and any additional instructions and information contained in the Site Safety Plan.
- Personnel shall be aware of symptoms for toxic chemicals on site in addition to pre-indicators of heat and cold stress.
- Contact lenses cannot be worn when respirator protection is required or when the hazard of splash exists.

- All personnel shall be familiar with all sections of the established respirator program.
- All personnel must adhere to the information contained in the Site Safety Plan.

Operations

- All personnel entering the site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
- Any required all personnel going into areas designated for wearing protective equipment must wear respiratory protective devices and clothing.
- Work zones (exclusion, contamination reduction, and support) for various operational activities shall be established.
- All personnel working on site have been trained in care and maintenance of respirators. All personnel have been properly fitted for respirators according to OSHA regulations. See Attachment E for a copy of ECI's Respiratory Protection Program.
- Site control measurements shall be taken. Control access point shall be established. The access points shall be secured with barricades, caution tape, traffic cones, or signs.
- On-site operating and emergency communications will be conducted through two-way radios in vehicles, portable radios on foot, and hand signals in case of communication breakdown. A review of hand signals will be conducted during the pre-entry briefing.
- All personnel on site will be informed of emergency evacuation procedures and signals.
- Personnel on site must use the buddy system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety backup, is required during extremely hazardous entries including, but not limited to *Level A and B* work, and confined space entries.
- Visual contact must be maintained between pairs and safety personnel on site. Entry team members should remain close together for assistance during emergencies.
- During continual operations, on-site workers act as safety backup to each other.
- Personnel should practice unfamiliar operations prior to doing the actual procedure.

- Personnel and equipment in the contaminated area should be minimized, consistent with effective site operations.
- Frequent and regular inspections of site operations will be conducted to ensure compliance with the Site Safety Plan. If any changes in operations occur, the Site Safety Plan must be modified to reflect changes.

9.0 RESPIRATORY PROTECTION PROGRAM AND PROCEDURES

The purpose of a respiratory protection program is to eliminate or reduce employee exposures to occupational dusts, fumes, mists, radionuclides, gases, and vapors that may have a detrimental impact on the respiratory system. OSHA has recognized Title 29 CFR 1910.134 as the general industry standard for respiratory protection. The standard requires that companies develop their own written respiratory protection program to assure worker safety from respiratory hazards. All on-site personnel will be required to comply with their employer specific written respiratory protection program developed in accordance with OSHA 29 CFR 1910.134. See Attachment E for a copy of ECI's Respiratory Protection Program.

When respirators are in use, each worker shall follow his employer's formal respiratory protection program. At a minimum, all personnel on site are to abide by the following:

- Workers shall be trained on the use, limitations, and care of the respirators.
- Retraining shall be conducted annually after initial training.
- All personnel are to be fit-tested by a qualitative or quantitative fit test on the particular respirator they are using.
- Medical certification must be provided by a physician stating that workers are "fit to wear a respirator."
- The wearer of a respirator will inspect it daily whenever it is in use. Supervisors will periodically spot check respirators for fit, usage, and condition.
- During cleaning and maintenance, respirators that do not pass inspection will be replaced or repaired immediately. Repair of the respirator must be done with parts designed for the respirator in accordance with the manufacturer's instructions.
- Respirators will be cleaned on a daily basis (or after each use if not used daily) according to the manufacturer's instructions, by the assigned employee or other person designated by the Respiratory Protection Program Administrator. Facilities and supplies for cleaning these respirators will be made available.

- Respirators will be stored in a suitable container away from areas of contamination. The respirators are stored in a location where they are protected from sunlight, dust, heat, cold, moisture, and damaging chemicals.
- The Respiratory Protection Program should be periodically reviewed and evaluated every 12 months. A written report shall be made of each evaluation, summarizing the findings.

The respiratory hazards identified for site work are dust particulate matter. The levels of particulates in work areas will be periodically monitored with a real-time particulate detector. Action levels for particulate readings have been established to modify (upgrade/downgrade) the level of respiratory protection. The action levels to determine the level of respiratory protection necessary during site activities is based on the PELs for non regulated particulates measured within worker breathing zones. The action levels and appropriate respiratory protection for the site work are as follows:

<i>Sustained Particulate Reading Above Background within Worker Breathing Zone in Milligrams per Cubic Meter</i>	<i>Action Taken</i>
background – 5mg/m ³	Level D, air purifying respirator available
> 5mg/m ³	Must wear air purifying respirator implement engineering controls

During level D activities where an air purifying respirator is required, the appropriate air purifying respirator cartridge to be used at the site is an OV cartridge with a particulate filter. The cartridge used must be from the same manufacturer as the respiratory face piece. ECI personnel will use either MSA 100 or 1000 (half-face and full-face air purifying respirators) for modified Level D PPE. Respirator cartridges will be changed at least daily, or if filters become clogged with dust and it is difficult to breathe, or if breakthrough occurs.

10.0 EMERGENCY AND FIRST-AID EQUIPMENT/SUPPLIES

Emergency safety equipment will be available for use by site personnel and will be located and maintained on site in ECI's Hazmat Trailer. The Hazmat Trailer will be stationed in both the decontamination reduction and support zones. Some duplicate safety equipment will also be available in the office trailer and in on-site vehicles. The safety equipment will include the following:

- Emergency eye wash (bottle)
- Two (2) 20 pound A-B-C type dry chemical fire extinguishers
- NIOSH approved first-aid kit approved for a minimum of ten personnel
- Fire blanket
- Two SCBA units
- Portable air horn
- Telephones (site/mobile)
- Eye wash station
- Emergency shower
- Two-way radios

The specific locations of the safety equipment will be identified in the pre-construction safety meeting.

11.0 FUGITIVE AIR EMISSIONS MONITORING PROGRAM

This section explains the general concepts of the air-monitoring program and specifies the surveillance activities that will take place during site activities. The purpose of air monitoring is to identify and quantify airborne contaminants in order to determine the level of worker protection needed. Initial screening for identification is often qualitative; i.e., the contaminant, or the class to which it belongs, is demonstrated to be present but the determination of its concentration (quantification) must await subsequent testing. The principal approach on-site for identifying and/or quantifying airborne contaminants during site activities will be the use of direct-reading instruments.

11.1 DIRECT-READING MONITORING INSTRUMENTS

Unlike air sampling devices (which are used to collect samples for subsequent analysis in a laboratory), direct-reading instruments provide information at the time of sampling, enabling rapid decision-making. Data obtained from the real-time monitors are used to assure proper selection of personnel protection equipment, engineering controls, and work practices. Overall, the instruments provide the user the capability to determine if site personnel are being exposed to concentrations which exceed exposure limits or action levels for hazardous materials. Of significant importance, especially during initial entries, is the potential for IDLH conditions or oxygen deficient atmospheres. Real-time monitors can be useful in identifying IDLH conditions, toxic levels of airborne contaminants, flammable atmospheres, or particulate concentrations. Periodic monitoring of conditions is critical, especially if exposures may have increased since initial monitoring or if new site activities have commenced.

11.1.1 Instruments to be Used On Site

The following direct reading instruments or their equivalents will be utilized regularly on site:

- Instrument: Ultraviolet Photoionization Detector (PID)

Manufacturer: Thermo Environmental Instruments or Hnu

Hazard Monitored: Most organic gases and vapors

Application: Detects total concentration of many organic vapors. It has an operating range of 0-2,000 parts per million (ppm) with a minimum detection of 0.1 ppm.

Detection Method: Ionizes molecules using UV radiation; produces a current that is proportional to the number of ions.

General Care/Maintenance: Recharge or replace battery. Regularly clean lamp window. Regularly clean and maintain the instrument and accessories. Regularly check lamp to see if replacement is necessary.

Typical Operating Time: 8 hours

Lamp Energy: 10.6eV

- Instrument: Combustible gas indicator (CGI)

Manufacturer: MSA

Model: Passport 4 Gas Meter

Hazard Monitored: Combustible gases and vapors.

Application: Measures the concentration of a combustible gas or vapor.

Detection Method: A filament, made of platinum, is heated by burning the combustible gas or vapor. The increase in heat is measured. Gases and vapors are ionized in a flame. A current is produced in proportion to the number of carbon atoms present.

General Care/Maintenance: Replace AAA alkaline batteries. Calibrate per manufacturers' recommendations (every six months).

Typical Operating Time: Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.

- Instrument: Real Time Particulate Monitor

Manufacturer: MIE

Model: Personal Data Ram

Hazard Measured: Suspended Particulate Matter

Detection Method: Utilizes a light-scattering photometer (i.e. nephelometer), which incorporates a pulsed, high output, near-infrared light emitting diode source, a silicon detector/hybrid preamplifier, collimating optics, and a source reference feedback PIN silicon detector. The intensity of the light scattered over the forward angle of 45° to 95° by airborne particles passing through the sensing chamber is linearly proportional to their concentration.

- Instrument: Oxygen Meter

Manufacturer: Neotronics

Model: Minigas-Trigas Meter

Hazard Monitored: Oxygen (O₂)

Application: Measures the percentage of O₂ in the air.

Detection Method: Uses an electrochemical sensor to measure the partial pressure of O₂ in the air, and converts that reading to O₂ concentration.

General Care/Maintenance: Replace detector cell according to manufacturers recommendations. Recharge or replace batteries prior to expiration of the specified interval. If the ambient air is more than 0.5% CO₂, replace the detector cell frequently.

Typical Operating Time: 8-12 hours.

11.2 MONITORING FREQUENCY AND SCHEDULE

Air monitoring at the start of construction activities (Baseline monitoring) will utilize the OVM, real time dust monitor. Baseline monitoring will continue for three days during the start of site work. The information gathered during this time will be used to determine increases in air emissions during the construction activities at the site, and will be used to ascertain the necessity for upgrading the respiratory protection levels. Readings will be taken three times a day along the site perimeter at 250-foot intervals upwind, during each testing day. Downwind readings will be taken at 100-foot intervals.

During intrusive site work, air monitoring will utilize the OVM, real time dust monitor, tri-gas (oxygen, explosive, toxic) meter and decibel meter. Readings will be taken in the EZ (active work area) hourly. Readings in the employee breathing zone will also be taken hourly. Readings along the site perimeter three times per day in three downwind and one upwind location.

Additional air monitoring will be conducted during anchor trench installation, utilizing Draeger Tubes for Benzene and 1,1-Dichloroethene. If any positive readings are encountered with the PID meter, a Draeger Tube sample will be taken to quantify the level, if any, of benzene and 1,1-Dichloroethene in the air. If benzene is quantified at 10 ppm or greater, Level C PPE will be utilized; whereas, if 1,1-Dichloroethene is detected at any level, Level B PPE will be donned. Chloroform will also be monitored utilizing Draeger tubes. If a quantitative reading of 5 ppm or higher is achieved in the absence of benzene or 1,1-Dichloroethene, ECI will upgrade to Level C PPE. Readings will be taken three times a day along the site perimeter and continuously during trench excavation.

The following table provides a summary of the contaminants to be monitored by direct reading instruments and the frequency/schedule of monitoring.

Table 11.2 MONITORING FREQUENCY AND SCHEDULE

CONTAMINANT	INSTRUMENT	FREQUENCY	LOCATION	CALIBRATION FREQUENCY	CALIBRATION GAS
Oxygen	O2 Monitor	As needed	Immediate Work Area Breathing Zone	Every 6 months or as needed	Clean Atmospheric Air
Combustible Gas	LEL Monitor	As needed	Immediate Work Area Breathing Zone	Every 6 months or as needed	
Organic Vapors and Gases	Photoionization Detector	As needed	Upwind/Downwind on perimeter Immediate Work Area Breathing Zone	Daily or as needed	250ppm Isobutylene Clean Atmospheric Air
Airborne Particulates Monitor	Aerosol Monitor	As needed	Immediate Work Area Breathing Zone	Every 6 months or as needed	Standard SAE Fine (ISO Fine) Test Dust and Special Zeroing Kit
Airborne Particulates Monitor	Aerosol Monitor	As needed	Upwind of Activities Downwind of Activities	Every 6 months or as needed	Standard SAE Fine (ISO Fine) Test Dust and Special Zeroing Kit
Benzene	Draeger Tube 8101231	PID/OVM readings greater than 1	Breathing Zone		
Chloroform	Draeger Tube 6728861	PID/OVM readings greater than 5	Breathing Zone		
1,1 Dichloroethene	Draeger Tube 8101721	Any positive PID/OVM readings	Breathing Zone		

11.3 ACTION LEVELS

Periodic direct reading air monitoring will be conducted hourly or as determined by the HSO. The following action levels and associated responses have been established:

Table 11.3 ACTION LEVELS

MONITORING	LEVEL	ACTION
Oxygen	<19.5%	Monitor wearing self-contained breathing apparatus. NOTE: Combustible gas readings are not valid in atmospheres with <19.5% oxygen.
	19.5%-23.5%	Continue periodic monitoring. Deviation from normal level may be due to presence of other substances.
	>23.5%	Fire hazard potential. Discontinue work.
Explosive Atmosphere	<10% LEL	Continue Monitoring.
	10%-25% LEL	Continue onsite monitoring with extreme caution as higher levels are encountered.
	>25% LEL	Explosion hazard. Withdraw from area immediately.
Airborne Particulate Monitor (Dust)	<5 mg/m ³	Continue investigation.
	>5 mg/m ³	Temporarily halt work activities until alternate work methods or engineering controls are in place to maintain particulate levels to acceptable concentrations.

Compound of Concern	Direct Monitoring Method	ACTION LEVEL – Upgrade to Level C	ACTION LEVEL – Upgrade to Level C Full Face
Benzene	Draeger Tube 8101231	Any positive	10 ppm
Chloroform	Draeger Tube 6728861	5 ppm	10 ppm
1,1-Dichloroethene	Draeger Tube 8101721	Any positive go to LEVEL B	--

11.4 REPORTING FORMAT

Air monitoring results will be logged daily onto the "Fugitive Air Emissions Monitoring Log" form. In addition, the general air-monitoring activities/results will be catalogued in the Daily

Site Log notebook kept by the HSO and/or superintendent. This report shall include the following information:

1. Site location and date.
2. Work process and operation name.
3. Temperature and wind/speed direction.
4. Area sampling location diagram.
5. Field notes including the following:
 - a) description of operations and complaints/symptoms.
 - b) chemicals/materials/equipment in use.
 - c) engineering/administration controls in effect.
 - d) personal protective equipment in place,
 - e) sampling observations/comments.

See Attachment F for a copy of the “Fugitive Air Emissions Monitoring Log” form.

12.0 FUGITIVE AIR EMISSIONS CONTROL

Wind erosion, vehicular traffic, and site excavation activities allow particles to become airborne and create an air pollution control problem. Once airborne, wind can provide a medium to transport dust particles and spread contaminants off-site. Elevated levels of airborne dust particles can cause respiratory hazards. If dust emissions are detected above 15 mg/m³ at the site, air emissions will be controlled by means of a dust suppressant.

12.1 ENGINEERING CONTROLS

The primary control techniques that are available include wet suppression, stabilization, and specialized techniques. In most cases, a simple water spray will be used to control fugitive dust from vehicular traffic on haul roads, exposed surfaces, and also stockpiles. Chemical suppressants and foam agents may also be used with Engineer approval. The chemical suppressants enhance the bond between soil particles, and foam agents create a blanket over the ground surface. They will only be considered if the water spray is not effective.

12.2 MONITORING

A direct reading monitor will be utilized to measure particulate levels and organic levels in construction area and downwind at site boundaries. A real-time particulate (PDM-3 Data Ram) monitor and organic vapor monitor will be utilized for air-emissions monitoring. The air-monitoring equipment will be operated by the HSO or a qualified technician under the control of the HSO.

Air quality will be monitored in and around the Exclusion Zone during the work activities. The monitoring will be conducted on a hourly basis unless site conditions warrant more frequent monitoring. A wind speed and direction indicator and a windsock will be utilized to provide atmospheric data and to provide basic data to carry out air-monitoring activities. Any departure from the general background readings will be reported to the Engineer. The HSO and the Engineer will then determine if any operational changes are needed.

12.3 FUGITIVE AIR EMISSIONS MONITORING REPORTING

The data obtained will be reported to the Engineer on specific air-monitoring report forms.

The following information will be included:

1. Site location/date.
2. Work process/operation name.
3. Temperature, wind speed, and wind direction.
4. Area sampling location diagram.
5. Field notes including the following:
 - a) Description of operations and complaints/symptoms.
 - b) Chemicals/material/equipment in use.
 - c) Engineering/administration controls in effect.
 - d) PPE in use.
 - e) Sampling observations/comments.

The daily air monitoring results will be recorded on the Fugitive Air Monitoring Daily Log forms in a three-ring binder. This log book will remain in the Contractor's trailer and will be available to the Engineer and employees. See Attachment F for a copy of the Fugitive Air Emissions Monitoring Log form.

13.0 MONITORING AND MITIGATION OF WORKER HEAT AND COLD STRESS

This section outlines the causes, symptoms, and treatment for emergencies involving heat and cold stress. It also covers monitoring techniques and preventive measures that can eliminate the onset of heat or cold stress conditions.

13.1 HEAT STRESS PREVENTION

Heat stress may occur any time that work is being performed at elevated temperatures. The use of chemical protective clothing typically decreases natural body ventilation. Improper ventilation will increase the risk of heat stress.

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions may occur. These range from mild symptoms (such as fatigue, irritability, anxiety, and decreased concentration and dexterity movement) to life-threatening situations (such as heat stroke). Because heat stress is one of the most common and potentially serious illnesses at hazardous waste sites, regular monitoring and other preventive measures are vital.

Site workers must learn to recognize and treat the various forms of heat stress. The best approach is preventive heat stress management. Workers will be monitored by the HSO for signs of heat stress, and Section 13.3 will be followed. In general, the following preventive measures should be taken:

- A. Workers should drink 16 ounces of water at the start of the work periods; such as in the morning or after lunch. Disposable 4-ounce cups should be provided. Water temperature should be 50 to 60°F. In situations where the potential for heat stress exists, workers should be encouraged to drink one to two cups of water every 20 minutes for a total of one to two gallons per day. Regular rest periods should be scheduled throughout the workday. Provide a cool area for rest breaks. Discourage the intake of coffee during working hours. Monitor workers for signs of heat stress.

- B. Workers should be acclimated to site work conditions by slowly increasing workloads (e.g., do not begin site work with extremely demanding activities).
- C. Provide cooling devices to workers to aid natural body ventilation. These devices, however, add weight and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear that acts as a wick to absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing. Other devices include cooling vests that may assist in extending the work periods for workers in chemical protective clothing in heat stress environments.
- D. In extremely hot weather, conduct field activities in the early morning and evening.
- E. Ensure that adequate shelter is available to protect personnel against heat.
- F. In hot weather, rotate shifts of workers wearing protective clothing.
- G. Maintain good hygienic standards by frequently changing clothing and showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems (heat rash) should immediately consult medical personnel.

13.2 TYPES OF HEAT STRESS

13.2.1 Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by the failure of heat regulating mechanisms in the body. The temperature control system in the body that causes sweating stops working properly preventing the body to naturally cool itself. Body temperature rises so high that brain damage and possibly death will result if the person is not cooled quickly.

- *Symptoms* - Red, hot, dry skin, although person may have been sweating earlier; nausea; dizziness; confusion; extremely high body temperature; rapid respiratory and pulse rate; unconsciousness or coma.
- *Treatment* - Cool the victim quickly. If the body temperature is not brought down fast, permanent brain damage or death may result. Soak the victim in cool, but not cold water; sponge the body with cool water or pour water on the body to reduce the temperature to a

safe level (102°F). Observe the victim and obtain medical help. Do not give coffee, tea or alcoholic beverages.

13.2.2 Heat Exhaustion

Heat exhaustion is a state of definite weakness or exhaustion caused by the loss of fluids from the body. The condition is much less dangerous than heat stroke, but it requires immediate attention.

- *Symptoms* - Pale, clammy, moist skin; profuse perspiration and extreme weakness. Body temperature is normal, pulse is weak and rapid, and breathing is shallow. The person may have a headache, may vomit, and may be dizzy.
- *Treatment* - Remove the person to a cool environment. Loosen clothing and place the victim in a head-low position. Provide bed rest. Consult a physician, especially in severe cases. The normal thirst mechanism is not sensitive enough to ensure body fluid replacement. Have victim drink one to two cups of water immediately, and every 20 minutes thereafter until symptoms subside. Total water consumption should be about one to two gallons per day.

13.2.3 Heat Cramps

Heat cramps are caused by perspiration that is not balanced by adequate fluid intake. Heat cramps are often the first sign of a condition that can lead to heat stroke.

- *Symptoms* - Acute painful spasms of voluntary muscles (e.g., abdomen and extremities).
- *Treatment* - Remove victim to cool area and loosen clothing. Have victim drink one to two cups of water immediately and every 20 minutes thereafter until symptoms subside. Total water consumption should be one to two gallons per day.

13.2.4 Heat Rash

Heat rash is caused by continuous exposure to heat and humid air and is aggravated by chafing clothes. The condition decreases the ability of the body to tolerate heat.

- *Symptoms* - Mild red rash, especially in areas of the body that come into contact with protective gear.
- *Treatment* - Decrease amount of time in protective gear and provide powder to help absorb moisture and decrease chafing.

13.3 HEAT STRESS MONITORING AND WORK CYCLE MANAGEMENT

For strenuous field activities that are part of on-going site work activities in hot weather, the following procedures shall be used to monitor the body's physiological response to heat, and to manage the work cycle, even if workers are not wearing impervious clothing. These procedures are to be instituted when the temperature exceeds 88°F. If possible these measures will be supplemented by the use of automatic monitoring equipment which can be worn by the workers under their PPE.

Measure Heart Rate - Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats/minute. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats/minute at the beginning of the next rest period, the following work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 110 beats/minute.

Measure Body Temperature - When ambient temperature is over 90°F, body temperatures should be measured with a clinical thermometer as early as possible in the resting period. If oral temperature (OT) at the beginning of the rest period exceeds 99.6°F, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the OT exceeds 99.6°F at the beginning of the next rest period, the following work cycle

should be further shortened by 33 percent. The procedure is continued until the body temperature is maintained below 99.6°F.

Physiological Monitoring Schedule - The following Suggested Frequency of Physiological Monitoring Schedule for Fit and Acclimated Workers shall be used as a guideline. Based on ambient temperature and the amount of sunshine, it provides time periods in which a worker's vital signs should be monitored.

Temperature (adjusted)	Level D	Level C
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°F (30.8°-32.2° C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-32.2°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 minutes of work	After each 120 minutes of work

Measure the air temperature with a standard thermometer. Estimate the fraction of sunshine by judging what percent of the sun is out.

100% sunshine = no cloud cover = 1.0

50% sunshine - 50% cloud cover = 0.5

0% sunshine - full cloud cover = 0.0

Adjusted temp. = actual temp. + 13 x (% sunshine factor)

The length of work period is governed by frequency of physiological monitoring. The length of the rest period is governed by physiological parameters (heart rate and oral temperature). For example, if an individual's heart rate exceeds 110 beats/minute at the beginning of the rest period, that individual will remain on rest-time until his/her heart rate drops well below

110 beats/minute and their next work period (-duration of time before suggested physiological monitoring) is decreased by 33 percent.

13.4 COLD STRESS PREVENTION

Persons working outdoors in low temperatures, especially at or below freezing, are subject to cold stress. Exposure to extreme cold for a short time causes severe injury to the surface of the body, or results in profound generalized cooling of the body's core temperature that can cause death. Areas of the body that have a high surface area-to-volume ratio such as fingers, toes, and ears, are the most susceptible to cold stress.

Chemical protective clothing generally does not afford protection against cold stress. In many instances, it increases susceptibility because the suit fabrics do not allow body moisture to evaporate. Hazardous waste site workers need to dress carefully to provide chemical protection and thermal insulation without over dressing so that exercise or strenuous activity will result in heat stress.

Provisions must also be made to account for sudden chilling that may occur following physical activity and the accumulation of body heat. These periods of sudden chilling during decontamination and rest breaks may increase susceptibility to colds and sickness.

Two factors influence the development of cold stress conditions: ambient temperature and the velocity of the wind. Wind Chill Indices describe the chilling effects of moving air in combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs with a wind of five miles per hour (mph).

Another factor that has a significant impact on maintaining body temperature is dampness or perspiration. Water conducts heat or cold 240 times faster than air. Thus, if the workers regular clothing is perspiration soaked, the body will cool rapidly when chemical protective clothing is removed. These additive effects are also true for condition of high winds, wet clothing, and low temperatures.

The following preventive measures can be taken to reduce the occurrence of cold stress:

- The most important parts of the body to protect are the feet, hands, and head (including the face). As much as 40% of body heat can be lost when the head is exposed.
- Clothing made of cotton fabric is recommended since it absorbs moisture and aids in sweat evaporation.
- Wool fabrics on outer layers are recommended.
- Clothing should be worn in layers to provide better insulation. In addition, layers of clothing can be removed to prevent overheating.
- Outer garments should be loosely fitting, and should be both wind proof and waterproof.
- The use of a hood is recommended because it prevents the escape of warm air from around the neck.
- When a hard hat is worn, an insulated liner should be used.
- Full-face piece respirators should be equipped with a nose cup to reduce fogging and frosting of the face piece.
- A face mask or scarf is vital when working in a cold wind.
- Boots should be waterproofed, and socks should be changed when they become sweat-soaked.
- Workers should inspect cold areas of the body on a regular basis for any signs of frost bite.
- Workers should take rest periods in a warm, sheltered area on a regular basis or as needed.

The following two sections describe the conditions that may result from cold stress; frost bite and hypothermia.

13.5 TYPES OF COLD STRESS AND TREATMENT

13.5.1 Frostbite

Local bodily injury resulting from cold is included in the generic term frostbite. Frostbite of the extremities can be separated into three categories:

1. Frost nip or incipient frostbite is characterized by sudden blanching or whitening of skin.

2. Superficial frostbite is characterized by skin with a waxy or white appearance and is firm to the touch, but the tissue beneath is resilient.
3. Deep frostbite is characterized by tissues that are cold, pale and solid.

To administer first aid for frostbite:

1. Take the victim indoors and re-warm the areas quickly in water that is between 39°C and 41°C (102°F to 105°F).
2. Give a warm drink (water or juices, no coffee, tea or alcohol). The victim must not smoke.
3. Keep the frozen parts in warm water or covered with warm clothes for 30 minutes even though the tissue will be very painful as it thaws.
4. Elevate the injured area and protect it from injury.
5. Do not allow blisters to be broken.
6. Use sterile, soft, dry material to cover the injured area.
7. Keep the victim warm and get immediate medical care.

After thawing, the victim should try to move the injured areas a little, but no more than can be done alone without help. Seek medical attention as soon as possible.

Note:

1. Do not rub the frostbitten part (this may cause gangrene).
2. Do not use ice, snow, gasoline or anything cold on the frostbitten area.
3. Do not use heat lamps or hot water bottles to re-warm the part.
4. Do not place the part near a hot stove.

13.5.2 Hypothermia

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperatures. Its symptoms are usually exhibited in five stages:

1. Shivering
2. Apathy, listlessness, sleepiness

3. (Sometimes) rapid cooling of the body to less than 95°F
4. Unconsciousness, glassy stare, slow pulse, slow respiration
5. Death

If hypothermia is suspected, move the person to a warmer location until symptoms recede.

14.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

This plan describes the contingency and emergency planning procedures to be implemented in the event of an on-site emergency such as a fire, toxic gas release, spill, or injury. Included is an On-Site Contingency and Emergency Response Plan to address the standard operating procedures for on-site personnel response to an emergency situation. Also included is an Off-Site Contingency and Emergency Response Plan for an integrated, coordinated response to an on-site emergency with local officials/agencies in order to safeguard the public and adjacent property. The Plans are intended to provide a network system to organize on-site and off-site personnel/resources to effectively respond to emergencies.

14.1 ON-SITE CONTINGENCY AND EMERGENCY RESPONSE PLAN

14.1.1 Injuries

In the event that injury occurs to on-site personnel, a plan of action has been established to expedite medical services. The Health and Safety Office (HSO), the Construction Superintendent and the Onsite Representative will be notified immediately. The HSO will assess the injury. If the injury is serious and will require medical attention, transportation services will be arranged with a contractor vehicle or by ambulance depending upon the severity of the injury. The HSO will be responsible for arranging transportation. In the event that an ambulance transport will be needed, the Emergency Medical System will be activated by calling 911 by either an on-site or mobile phone.

If the injured person is considered "contaminated," the victim will need to be decontaminated. Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the victim's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the HSO and Engineer.

In the event that the injury was caused by hazardous material, an attempt will be made to identify the material. When any site personnel are transported to a clinic or hospital for treatment, the hospital/clinic should be provided with information on the chemical(s) the injured party had been exposed to at the site. The existing chemical data is also included in Table 0.2 on page ix.

If the victim is to be transported by an on-site vehicle, the following route will be taken to St. Mary's Medical Center, 701 Superior Avenue, Munster, Indiana; or, Community Hospital, 901 MacArthur Blvd., Munster, Indiana, which were identified as the closest hospitals:

- *St. Mary's Medical Center:* North on Colfax Street (1.50 miles), left onto East Glen Park Ave./East 45th Street (1.00 mile), this street becomes 45th Street/West Glen Park Ave. (0.50 miles), this street becomes 45th Street (3.49 miles), left onto Calumet Ave. (0.32 miles), right onto Superior Ave. (0.10 miles).
- *Community Hospital:* North on Colfax Street (1.50 miles), left onto East Glen Park Ave./East 45th Street (1.00 mile), this street becomes 45th Street/West Glen Park Ave. (0.50 miles), this street becomes 45th Street (3.49 miles), right onto Calumet Ave. (0.57 miles), right onto MacArthur Blvd. (0.14 miles).

Note: A map showing the routes to the hospitals will be posted on site and will be included in the Health and Safety Plan as Attachment G.

14.1.2 Encountering Drums, Barrels, or Canisters

1. Cease work and notify HSO, Contractor Supervisor, and ECI Project Manager.
2. Determine appropriate modifications to HASP by HSO and Engineer.

14.2 DETECTION OF EXCESSIVE GASES OR VAPORS

1. Evacuate workers to an area upwind from the effected area.

2. Identify the contaminant and monitor contaminant concentrations to determine the type of respiratory protection and/or engineering controls required allowing safe re-entry of workers to the area.

14.3 FIRES

1. If controllable, use firefighting equipment on-site (fire extinguishers, backhoe, water) to extinguish the fire.
2. Remove or isolate flammable or other hazardous materials that may contribute to the fire.
3. If the fire is not controllable or if noxious gases arise, employ proper evacuation procedures and call 911 for a fire emergency.

14.4 MAJOR TOXIC GAS LEAK/RELEASE

1. Evacuate on-site personnel to a safe distance.
2. Notify the local Police and Fire Department.
3. The Police and Fire Department Officials will assume responsibility to coordinate an emergency response strategy with the HSO and Engineer.

14.5 LINES OF AUTHORITY

The Site Superintendent has primary responsibility for responding to and correcting emergency situations. This includes taking appropriate measures to ensure the safety of site personnel, the public, and the environment. Possible actions may involve evacuation of personnel from the site area, and the evacuation of adjacent residents. The Superintendent is responsible to ensure that corrective measures are implemented, appropriate authorities notified, and follow-up reports completed. The HSO may be called upon to act on the behalf of the Superintendent and will respond to any medical emergencies.

The following lines of authority have been established to implement the site emergency response/contingency plan:

1. The Construction Superintendent: Steve Palmer
2. Emergency Response Officer DeWayne White

3. Health Safety Officer: Randy Price
4. Project Manager Daryl Streed

14.6 EMERGENCY CONTACT/NOTIFICATION SYSTEM

The following list provides names and telephone number for emergency contact personnel. In the event of a medical emergency, personnel will take direction from the construction superintendent, emergency response officer, and HSO and notify the appropriate emergency organization. In the event of a fire or spill, the Site Superintendent will notify the appropriate local, state, and federal agencies.

Table 2
EMERGENCY CONTACTS/CONTINGENCY PLAN

ORGANIZATION	TELEPHONE
Ambulance	911 and 219-838-4444
Police	911 and 219-924-7503
Fire	911 and 219-924-7500
State Police	911
Hospital – Community Hospital	219-836-1600
Hospital – St. Mary's Medical Center	219-942-0551
Pollution Emergency Alerting System	800/292-4706
National Response Center (24 Hours)	800/424-8802
EPA Emergency Response Team	908/321-6660
Chemtrec	800/424-9555
ECI Construction Superintendent (Steve Palmer)	815/978-4313 Cell
ECI Project Manager (Daryl Streed)	815/509-4279 Cell

If it is safe to do so, site personnel may:

- Use firefighting equipment available on site to control or extinguish the fire.
- Remove or isolate flammable or other hazardous materials that may contribute to the fire.

14.7 EVACUATION ROUTES/PROCEDURES

In the event of an emergency that necessitates an evacuation of the site, the following alarm procedures will be implemented:

- Evacuation alarm notification should be made using three short blasts on the air horn, supplemented using the hand held radios. All personnel should evacuate upwind of any activities. Insure that a predetermined location is identified off-site in case of an emergency, so that all personnel can be accounted for.
- Personnel will be expected to proceed to the closest exit with your buddy, and mobilize to the safe distance area associated with the evacuation route. Personnel will remain at that area until the re-entry alarm is sounded or an authorized individual provides further instructions.

14.8 OFF-SITE CONTINGENCY AND EMERGENCY PLAN

14.8.1 Coordination with Local Agencies

ECI does not anticipate transporting or moving any waste off of the work site. However, in the event that waste may escape from the work boundaries and migrate off site, the same notification procedures will occur as listed for an on-site emergency. This plan is intended to provide immediate response to a serious site occurrence such as explosion, fire, or migration of significant quantities of toxic or hazardous material from site that could affect or endanger the public or adjacent public or private areas. ECI will be responsible for coordinating the off-site Contingency and Emergency Response Plan.

A coordination meeting will be scheduled with appropriate authorities that may include Fire Department, Hospital, Sheriff, State Patrol, State Department of Transportation, and Civil Defense officials. The meeting will identify the off-site Emergency response Coordinator through whom all information and coordination will occur in the event of an incident. ECI will develop plans and procedures, or adopt existing plans and procedures for:

1. Evacuation of site-adjacent areas.
2. Fire-fighting procedures.
3. Transport of injured personnel to medical facilities.
4. Priority transportation routes.

5. Coordination and/or modification of highway operations.
6. Techniques and recommended procedures for immediate first-aid emergency response with local medical facilities.

15.0 TRAFFIC CONTROL MEASURES

Measures to control traffic and site security will be outlined in this section. Basic site security and traffic control will be handled by restricting access to the site through the use of signs, fencing, barriers and restricted access.

15.1 FENCING AND BARRIERS

- A. Temporary fencing, in the form of orange construction fencing will be utilized to delineate work areas.
- B. Signs will be installed around the perimeter of the site warning potential trespassers of "Hazardous Materials Keep Out, Authorized Personnel Only."
- C. The responsibility of maintaining the fencing will belong to the health and Safety Officer. The HSO will also see to it that these fence security lines are enforced and observed.
- D. Ensure that open excavations are flagged and barricaded daily as required for safety prior to leaving site at the end of each workday.
- E. Provide protection for plant life designated to remain. Restore disturbed vegetation to original condition.

15.2 SECURITY

- A. Security and facilities to protect work and site from unauthorized entry, vandalism, or theft will be provided.
- B. A security program will be maintained throughout construction period until demobilization from site.
- C. Access of persons and vehicles into site will be restricted when there are no on-site activities.
- D. Entrance will only be allowed to authorized persons with proper identification.
- E. A log of workers and visitors will be kept and made available to Engineer on request. The date, name, address, company employed by, company/person visited, time in and tie out for each person, and record of deliveries and security incidents will be included. All visitors shall be required to have written proof of successfully completed 40-hour and/or

8-hour OSHA courses and proof of the OSHA medical documentation requirements in accordance with the Site-Specific Health and Safety Plan prior to gaining access to the Exclusion Zones or Contaminant Reduction Zone. See Attachment I for a copy of the Site Personnel Record.

- F. Only persons and vehicles related to Contractor's or Contractor's Representatives' operations will be allowed site entry.
- G. Cameras will not be allowed on site except by prior written approval of Honeywell.
- H. In the event that unauthorized personnel are observed on site, notify Engineer and, if so directed by Engineer, call upon the appropriate law enforcement officials for proper legal actions.
- I. Visitors will not be permitted to enter the Exclusion Zone and Contaminant Reduction Zones without the express permission of the HSO and Engineer; visitors will be required to complete training in accordance with the HASP prior to gaining access to the EZ and CRZ.
- J. The access gate to the site will be kept closed except for passage of authorized personnel and vehicles.

15.3 TRAFFIC REGULATIONS

- A. Parking will be set up to prevent interference with public traffic and access by emergency vehicles.
- B. The parking of construction personnel's vehicles will be monitored to maintain vehicular access to and through parking areas.
- C. Parking on or adjacent to access roads or in non-designated areas will not be allowed.
- D. The authority having jurisdiction will be consulted to establish thoroughfares to be used for haul routes and site access.
- E. Confine construction traffic to designated haul routes.

16.0 FIRE SAFETY AND PREVENTION

16.1 FIRE SAFETY PREVENTION MEASURES

The best method of fire protection is prevention. Fire prevention takes a conscious effort on behalf of everyone involved. The material that will be excavated on site is potentially flammable. The following measures will be implemented to prevent fires:

- No smoking on site will be allowed with the exception of a designated area in the Clean Zone near the office trailers.
- Equipment will be properly maintained to prevent backfires and sparking. No open burning will be allowed.
- The use of spark-proof and explain-proof equipment in flammable atmospheres.
- Air monitoring will be conducted hourly to assure that the atmosphere does not contain high concentrations of explosive gases.
- Care will be taken when uncovering any barrels, realizing that the site characterization showed that the majority of the barrels contain flammable liquids. This care will involve guarding against rupturing container and following proper material handling techniques.

16.2 OSHA FIRE PROTECTION STANDARDS

OSHA regulated fire protection standards will be followed. These standards in 29 CFR Subpart 1926.150 and 29 CFR Subpart L 1910.155-165 are as follows:

- A communication system for employees to contact the fire department.
- Portable fire extinguishers shall be of the proper type and size.
- Employees should not travel more than 75 feet (29 CFR 1910) or 100 feet (29 CFR 1926) to find an extinguisher.
- Portable extinguishers should be visually inspected monthly and professionally annually.
- Personnel should be trained in the proper use of fire-fighting equipment.
- Portable fire extinguishers need to be secured, upright, and identified.
- No smoking or open flames are permitted in areas used for fueling. Signs shall be posted to that effect.

16.3 FIRE FIGHTING PROCEDURES

In the event that a fire should occur on site, it is important to act in a calm and collective manner. This attitude in dealing with emergencies comes from training and knowledge of ones available equipment. To aid in fire related emergencies the OSHA mandated equipment and regulations will be available on site.

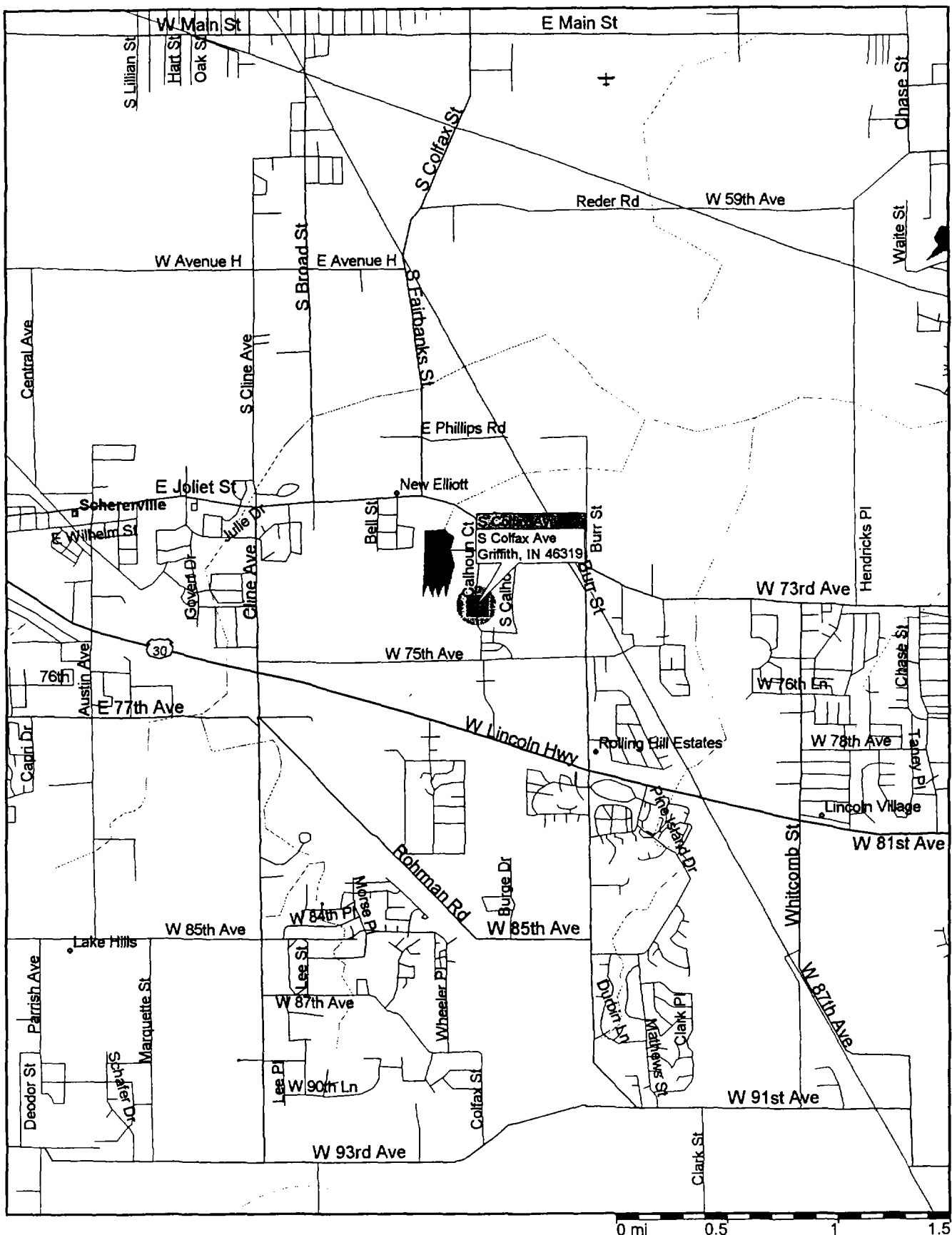
In the event of a fire or explosion on site, the local fire department should be summoned immediately by dialing 911 from a site or mobile telephone. Upon the fire department's arrival, *the HSO or a designated alternate* will advise the commanding office of the fire department the size, nature, and location of the fire. The fire department will also be advised of the location and identification of any relevant hazardous materials located on site.

If it is deemed safe, site personnel should:

1. Use firefighting equipment available on site. This includes but is not limited to fire extinguishers, backhoes, and water.
2. Remove or isolate flammable or other hazardous materials that may contribute to the fire.
3. Report incident to the HSO and Engineer.

ATTACHMENT A

Site Location Map

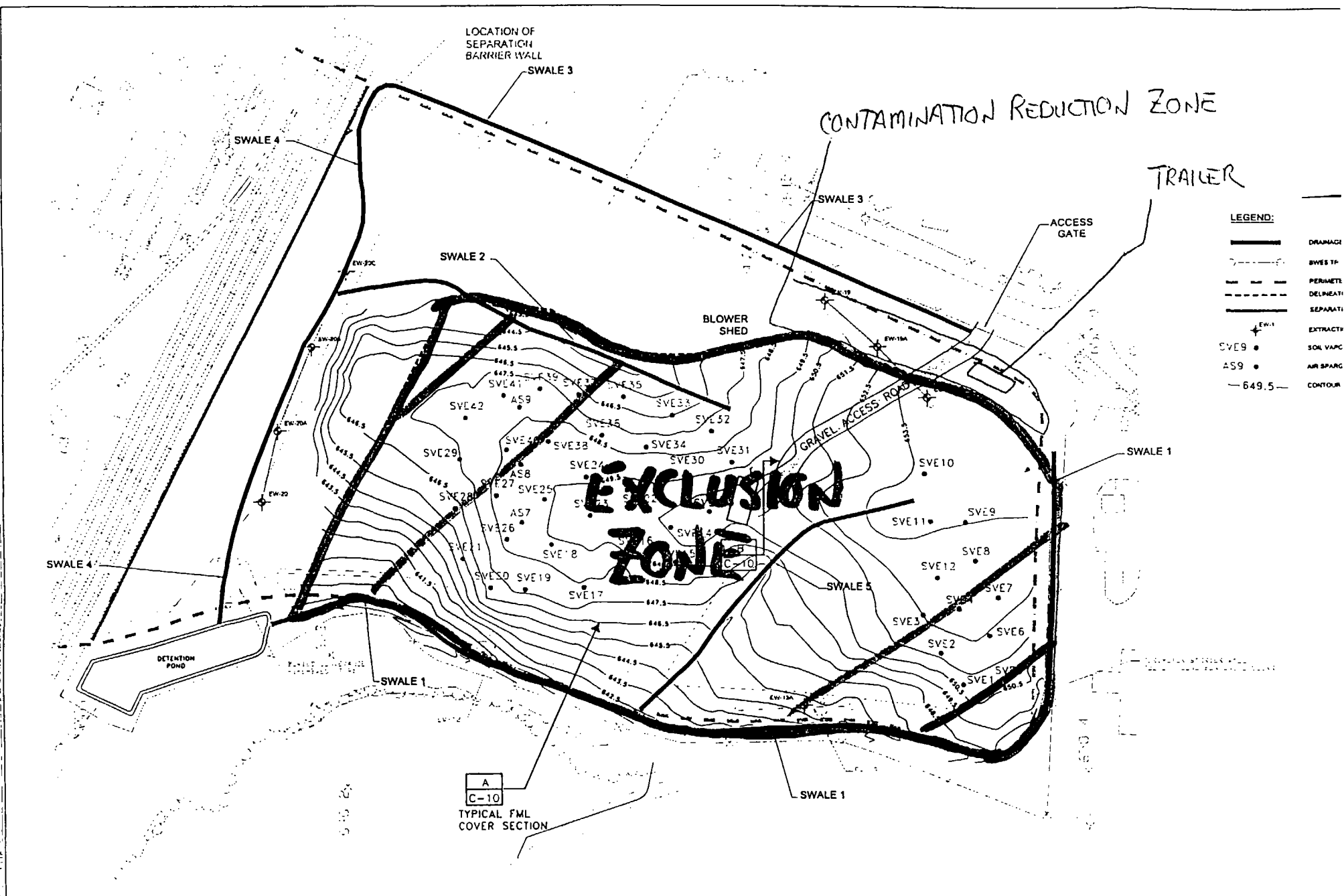



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ATTACHMENT B

Site Layout Diagram

REV DATE BY DESCRIPTION



			SCALE	WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	DESIGNED _____	SUBMITTED BY _____	 MWH MONTGOMERY WATSON HARZA	ACS RD/RA GROUP AMERICAN CHEMICAL SERVICE SUPERFUND SITE GRIFFITH, INDIANA	FINAL TOP OF TOPSOIL
			1" = 50'-0"	DRAWN _____	(PROJECT MANAGER) _____	LICENSE NO _____ DATE _____			
REV	DATE	BY	DESCRIPTION	CHECKED _____	(COMPANY OFFICER) _____	LICENSE NO _____ DATE _____			

ATTACHMENT C

Equipment Log

ECI EQUIPMENT LOG OFF-SITE CONTAINMENT AREA

[illegible]

ATTACHMENT D

ECI's Confined Space Entry Program

CONFINED SPACE ENTRY PROGRAM

Scope, Application, and Definitions

- (a) Scope and applications. The site construction procedures for the engineered cover installation at the Off-Site Containment Area, Griffith, Indiana applies to all open excavations made in the earth's surface. Excavations are defined to include trenches.
- (b) Definitions applicable to this Excavation Plan.

Bell-bottom pier hole means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a bell shape.

Benching (Benching system) means a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-in means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so it would entrap, bury, or otherwise injure and immobilize a person.

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Excavation means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Failure means the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

Hazardous atmosphere means an atmosphere which by, reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

Protective system means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp means an inclined walking or working surface used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

Shoring (Shoring system) means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sloping (Sloping system) means a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Stable rock means natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable

when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system designed by a registered professional engineer.

Structural ramp means a ramp built of steel or wood usually used for vehicle access. Ramps made of soil or rocks are not considered structural ramps.

Trench (Trench excavation) means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m). If forms or other structures are installed or constructed in an excavation, so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

General Requirements

- (a) Surface encumbrances. All surface encumbrances, that are located so as to create a hazard to employees, shall be removed or supported, as necessary to safeguard employees.
- (b) Underground installations.
 - (1) The estimated location of utility installation or any other underground installations that have the potential to be encountered during excavation work shall be determined prior to excavation.
 - (2) Utility companies or owners shall be contacted with appropriate prior notice to excavation activities, notified of the proposed work, and asked to establish the location of the utility underground installations prior to the start of excavation. When utility companies or owners cannot respond to a request in the established advanced notice time frame, or cannot establish the exact location of the installations, the contractor may proceed, provided the contractor does

so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

- (3) When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by a safe and acceptable means. If excavation activities approach within 15 inches of a utility, workers shall hand dig to locate the buried structure.
- (4) While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

(c) Access and egress.

- (1) *Structural ramps used solely by employees as a means of access or egress from excavations, shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.*
- (2) The egress system for the contaminated soil and sump excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees shall consist of a minimum of two ladders. The ladders shall be manufactured portable metal in accordance with the provisions of the American National Standards Institute, A 14.3-1956, Safety Code for Portable Metal Ladders (Reference 29 CFR 1926.450 a). They shall be fitted with permanent hard rails and have a minimum of three stairs per ladder. Portable ladder feet shall be placed on a substantial base, and the area around the top and bottom of the ladder shall be kept clear. The portable ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder. The side rails of the portable ladder shall extend not less than 36 inches above the landing. Portable ladders in use shall be tied, blocked, or otherwise secured to prevent their being displaced. The portable ladders shall be located no more than 25 feet of lateral travel for employees in the excavation to reach them.

- (d) Public vehicular traffic will not exist in the designated work areas.
- (e) No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded to provide adequate protection for the operator.
- (f) When mobile equipment is operated adjacent to an excavation and the operator does not have a clear and direct view of the edge of the excavation, one of the following warning systems shall be utilized: barricades, hand signals, or mechanical signals (horn).
- (g) Hazardous atmosphere.
 - (1) Testing and controls to prevent exposure to harmful levels of atmospheric contaminants.
 - (i) When the potential for oxygen deficient atmospheres (atmospheres with less than 19.5 percent oxygen) or potential hazardous atmospheres exist, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.
 - (ii) Ventilation and/or supplied air shall be provided to employees to prevent exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres.
 - (iii) A spark-free ventilation system shall be provided to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.
 - (iv) When controls are used that are intended to reduce the level(s) of atmospheric contaminants, testing shall be conducted as needed to ensure that the atmosphere remains safe.

- (2) Emergency rescue equipment.
 - (i) Respirators and safety harness and line shall be available where hazardous atmospheric conditions exist or have the potential to develop during excavation activities.
 - (ii) Employees will not be working in bell-bottom pier holes or other similar excavations.
- (h) Employees will not enter excavations in which there is accumulated water.
- (I) Limits of excavations will not extend within 2 feet of existing structures.
- (j) Protection of employees from loose rock or soil will be provided either by scaling or by placement of barricades.
- (k) Daily inspections of excavations, the adjacent areas, and the protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failures of protective systems, hazardous atmospheres, or other hazardous conditions. Inspections shall be made prior to the start of work and as needed throughout the day.
- (l) Adequate barrier physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, sumps, etc., shall be barricaded or covered. Upon completion of excavation operations, the excavated areas shall be backfilled.

Requirements for Protective Systems

- (a) Protection of employees in excavations.
 - (1) Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section except when:
 - (i) Excavations are made entirely in stable rock; or
 - (ii) Excavations are less than 5 feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in.
 - (2) Protective systems shall have the capacity to resist, without failure, all loads that have the potential to be applied or transmitted to the system.

Design of sloping and benching systems. Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal).

ATTACHMENT E

ECI's Respiratory Protection Program

RESPIRATORY PROTECTION PROGRAM

The purpose of this program is to protect employees from respiratory hazards and to comply with the OSHA Respiratory Protection Standard 29 CFR 1910.134 and ANSI Z88.2 - 1980. This program provides the project safety supervisors with enough information to establish and direct a respiratory program at the jobsite. Environmental Contractors of Illinois, Inc.'s policy is that respirators are to be used only after the Risk Management Department has evaluated the work process, the exposure, and alternative control measures such as dilute or exhaust ventilation, wet methods, airless spray, and substitute products.

Administration of Responsibilities

The supervising safety representative has total responsibility for administration of this program. Effective administration includes the following:

- Work area surveillance to determine the type and concentrations of air contamination found on each construction site
- Respirator selection, using the guidelines set forth in this manual and manufacturer's recommendations
- Employee training in the proper use of the respirators
- Respirator fit testing
- Respirator maintenance and cleaning procedures
- Purchasing procedures and inventory control
- Guidelines for emergency respirator use
- Medical Surveillance of employees using respiratory protection devices

- Program evaluation

Six sets of records must be maintained for proper surveillance and control of this program:

- Industrial Hygiene Monitoring Data Sheet (Figure 10-2)
- Medical surveillance and job assignment data (see page 10-13 for form requirements)
- Respirator Care and Maintenance Record (Figure 10-3)
- Emergency Equipment Inspection Sheet (Figure 10-4)
- Respirator Protection Education and Fit Testing Records (Figure 10-5)
- Respirator Usage List (Figure 10-6)

Definitions

Approval A certificate or formal document issued by NIOSH stating an individual respirator or combination of respirators has met the minimum requirements of 42 CFR 84 and the applicant (manufacturer) is authorized to use and attach an approval label to any respirator, container or respirator instruction card.

Respirators for escape only A respiratory device providing protection only during escape from hazardous atmospheres.

Fume A solid condensation particle, generally less than 1 micrometer in diameter.

Gas An aeriform fluid which is in a gaseous state at ordinary temperature and pressure.

Mist A liquid condensation particle with a size ranging from submicroscopic to macroscopic.

Respirator Any device designed to provide the wearer with respiratory protection against inhalation of a hazardous atmosphere.

Work Area Surveillance

Work area conditions must be surveyed to determine the degree of employee exposure or stress. The surveillance should include the following:

- Identify substances that cause, or may cause, employees' overexposure
- Determine the estimated average exposure concentration that can be expected for eight (8) hours of normal work operations
- Determine whether feasible engineering controls are, or can be provided to reduce or eliminate the exposure

The surveillance can be conducted by using direct detection tubes, air sampling instruments, and evaluation of the material according to instructions on its Material Safety Data Sheet. The method of surveillance should be coordinated with the Risk Management Department. If warranted, a field industrial hygiene evaluation shall be conducted.

The protection factor (PF) must always be considered when selecting respiratory protection. The PF represents the efficiency of a respirator and is calculated using:

ambient air concentration

$$PF = \frac{\text{concentration inside face piece or enclosure}}{\text{ambient air concentration}}$$

It is recommended that when selecting respirators, the project should secure from the manufacturer the PFs and manufacturer's recommendation of each type and model of respirator prior to purchase. The following is a condensed list of PFs:

Type of Respirator

Protection Factor

Air purifying:

Single use dust	5
Half or quarter mask fume	10
Full facepiece	50

Supplied air:

Demand, half mask	10
Demand, full mask	50
Pressure demand, half mask	1,000
Pressure demand, full mask	2,000
Continuous flow, hood, helmet, or suit	2,000

Self-contained breathing apparatus:

Open circuit, demand, full face piece	50
Open circuit, pressure demand, full face piece	10,000

To calculate the effectiveness of a given respirator, the ambient containment concentration must be monitored. Once this is determined, the monitored concentration must be weighted against the following:

$$PF \times \text{permissible exposure limit} = \text{maximum use concentration}$$

Respirator use must be re-evaluated when process procedures or products are changed.

Selection

Project supervisors must determine the type of respirator from nine (9) classes of filters comprised of three levels of minimum filtration efficiency and three categories of resistance to the effects of oil aerosols. The three different levels of filtration efficiency are:

- 95 percent
- 99 percent
- 99.97 percent

Supervisors can select these new filters without regard to particle size because they will be effective against any size aerosol and more efficient against larger particles. The three categories of resistance to oil aerosols are:

- "N" for Not resistant to oil
- "R" for Resistant to oil
- "P" for Oil Proof

The supervisor must determine whether the work environment contains oil. Referencing the NIOSH User's Guide (Publication No. 96-101) will enable the supervisor to make an informed decision. Other factors include the type of contaminant, filter efficiency and desired respirator characteristics.

Medical Surveillance

No employee can be assigned work that requires the use of a respirator unless he or she is physically capable of doing the work. The Environmental Contractors of Illinois, Inc. manager of Medical Services has defined "physically able" as having no abnormalities indicated in the medical history and examination, meeting the primary function, and blood pressure criteria as defined below.

The medical examination must include the following:

- Report of Medical History and Examination (Figure 10-7)
- Blood pressure, pulse rate, height, weight, etc., taken by a qualified physician or registered nurse. Recommended blood pressure recording is 160 mm Hg systolic and 95 mm Hg diastolic or less for those using a respirator.
- Pulmonary lung function test
- Uncorrected Visual Acuity for employees unable to wear glasses with full face piece respirator must be at least:

20/40.....in the better eye

20/60.....in the other eye

Pulmonary Lung Function Test

The employee is first informed that the exam is necessary because he or she is required to wear a respirator according to the Occupational Safety and Health Act (OSHA) and Environmental Contractors of Illinois, Inc. medical directives. Have the employee fill out the first page of the Report of Medical Examination form. The second page is completed by a qualified member of the safety staff who records such things as the employee's blood pressure, pulse rate, weight, and height. If a medical problem (for example, collapsed lung, extreme blood pressure, throat cancer) is noted, a doctor must review the form and, if necessary, examine the employee prior to the spirometer test.

The pulmonary lung function test, using a spirometer, must be conducted with only the employee and the tester in the room, as peer pressure will often yield poor data. (On smaller job sites the local consulting physician should make arrangements for the test at a local clinic.) The test must not be performed after eating, as the volume of the lung is slightly decreased. Usually an hour lag time is sufficient. During the test the employee must not chew gum, eat food, or smoke. The employee must be informed that this is a

simple test to measure forced vital capacity (FVC), which is the maximum lung capacity expired, and forced expired volume (FEV_1), which is the total volume punched out of the lungs in one second.

Before beginning the pulmonary function test, ask if the employee has taken or inhaled a bronchial dilator within the last three hours. If so, request the manufacturer name and type and consult a physician. A bronchial dilator can increase an individual's volume by 20 percent.

Performing the Test

Instruct the employee to hold the mouth piece close to one cheek, exhale all air out of the lungs, pinch the nose closed, and then inhale as much air as possible. Coach the employee by saying "in, in, in." Just before the lungs are filled, turn the chart drive on as quickly as possible and once the lungs are filled tell the employee to "blow, blow, blow." Coaching is one of the most important steps of the program; it can add 25 percent to an employee's volume. When the curve has plateaus (or after about 5 seconds), the employee may stop. This test should be completed three times. Try to space it so that the employee does not hyperventilate and become faint.

If the employee requests the test results, explain that after the calculations are made, the data is placed against a national average for his or her age and height group. Then the numbers are judged against criteria established by the Environmental Contractors of Illinois, Inc. medical services. Once the above results have been compiled, the data will be available for the employer's review. Environmental Contractors of Illinois, Inc. medical services should establish the following levels of pulmonary function required for employees to use a respiratory apparatus:

Acceptable: FEV_1 75% and FEV_1 70%

Borderline: FEV_1 75% to 60% and/or FEV_1 70% to 55%

FVC

Rejected: FEV_1 60% and/or FEV_1 55%

FVC

Any employee with a borderline result must have written authorization from a licensed physician for permission to wear a respiratory apparatus. Any employee with a rejected result must not be allowed to wear a respirator.

Interpreting the Data (when a computerized unit is not available).

Take the highest value from the three curves for both FVC and FEV_1 . Note that the highest FVC and FEV_1 values do not have to be from the same curve. Be sure to note if the placement of the volumes on the graph is ambient temperature and pressure saturated (ATPS) or body temperature and pressure saturated with water (BTPS). BTPS correction factors are in Table 10-2. If the spirometer produces a graph in ATPS, you should use the next to the last column of the table in making BTPS corrections.

If the spirometer produces a graph which has been BTPS corrected for 25° use the first column of correction factors. To correct the FVC and FEV_1 to BTPS, each observed value should be multiplied by the BTPS factor corresponding to the spirometer temperature or at room temperature.

Write both the FVC and FEV_1 corrected observed values on the back of the graph paper. You should also note the temperature and correction factor used on the graphs. All other relative data (i.e., name, date, race, age) should be placed on the backside of the graph.

The predicted values for FEV_1 and FVC, taken from Table 10-3, are to be written on the backside of the chart. They are the norms or national average. Remember to check the top of the table, since there are FVC and FEV_1 for both male and female. Also, remember that if an age is between two volumes, average the two numbers.

To calculate the "percent of predicted values," do the following calculations:

$$\text{Observed corrected FVC ratio} = \% \text{ of predicted}$$

Predicted FVC

Observed corrected FEV₁ ratio = % of predicted

Predicted FEV₁

These calculated percentages of predicted values are entered on the graph under "percent of predicted".

The local consulting physician must review and sign off on every completed spirometer test. If the employee meets the criteria, and his/her medical history indicates no problems, and his/her blood pressure is within the directives, then he or she can proceed with the work. If an employee does not meet these criteria, he or she can take a letter (Figure 10-8) to a personal physician and request that additional testing be done.

The average individual loses about one percent volume per year due to aging, and varies three percent from day to day, which is compensated for in the predicted values. If an employee's values vary greater than 50 percent on the annual examination from his/her previous test, the employee should be retested. If the values still vary greater than five percent, a physician must be consulted.

Figure 10-9 is a sample respirator card that should be given to all employees who have passed the medical examination and are trained and fitted for a selected respirator. This card is valid for one year, at which time the employee should be re-evaluated. Until then, he or she should not be issued a respirator. If male employee did not have facial hair when fitted, but does when requesting a respirator, he should not be reissued a respirator until he has been refitted.

Selecting and Using a Respirator

The potential hazard exposure determines what kind of respirator is used. The following must be considered:

- What is the airborne contaminant concentration where the respirator will be used?

- What type of filter is appropriate for the contaminant?
- What is the permissible exposure limit, threshold limit value, or short-term exposure limit (STEL) for the contaminant?
- Does the contaminant contain oil?
- Is the contaminant a gas, vapor, dust, or fume? (Refer to the definitions page)
- Could the contaminant concentration be termed immediately dangerous to life or health? (IDLH)
 - If the contaminant is flammable, does the estimated concentration approach the lower explosive limit, or do dust concentrations create a potential explosive problem?
 - Does the contaminant have adequate warning properties, such as odor, irritation or taste?
 - Does the contaminant irritate the eyes at the estimated concentration?
 - What type of respirator will give the required maximum protection?

The following respiratory hazards included in selection are:

- Oxygen deficiency
- Gases, vapors
- Particles, including dusts, fumes and mists

Mechanical Filter Respirators

Mechanical filter respirators protect against airborne particulate matter such as dust, mists, metal fumes, and smokes. Three styles of respirators are used: quarter masks with a single cartridge, and disposable units.

Mechanical filter respirators must not be used in environments immediately dangerous to life or health or in atmospheres containing less than 19.5 percent oxygen. High efficiency filter cartridges must be used when the employee is exposed to highly toxic particulate matter or to radionuclides. When working where eye irritation is a problem, a full facepiece unit must be used. Any approved filter respirator can be used for nuisance dusts as long as the protection factor is not exceeded. Do not use a more efficient respirator than necessary. For example, a fume-type cartridge for nuisance dust will clog up rapidly, thus lowering usage time.

Chemical Cartridge Respirators

Chemical cartridge respirators protect against low concentrations of organic vapors and gases, alkaline gases, acid gases, mercury vapors, pesticides, paint vapors and mists, organic vapors or gases combined with acid, or alkaline gases. It also protects against any of these materials combined with dust, fumes, or mists.

Chemical cartridge respirators must not be used for exposures to air contaminants that cannot be easily detected by odor or irritation. For example, they must not be used to protect against methyl chloride or hydrogen sulfide. The former is odorless; the latter, while foul smelling, paralyzes the olfactory nerve so quickly that odor detection is unreliable. Chemical cartridge respirators must not be used for protection against gases that are not effectively stopped (for example, carbon dioxide).

Do not use chemical cartridge respirators for the materials listed below. Instead use airline and supplied or special use respirators.

<u>Name</u>	<u>Chemical Abstract Service Registry Number</u>
Acrolein	107-02-8
Aniline	62-53-3
Arsine	7440-38-2
Bromine	314-40-9
Carbon Monoxide	630-08-0
Dimethylaniline	121-69-7
Dimethyl Sulfate	77-78-1
Hydrazide	302-01-2
Hydrogen Cyanide	74-90-8
Hydrogen Fluoride	7664-39-3
Hydrogen Selenite	7783-07-5
Hydrogen Sulfide	7783-06-4
Methanol	67-56-1
Methyl Bromide	74-83-9
Methyl Chloride (this is not M-6)	74-87-3
Methylene Biphenyl Isocyanide	101-68-8
Nickel Carbonyl	13463-39-3

Nitro Compounds:

Nitrobenzene	98-95-3
Nitrogen Oxides	10024-97-6
Nitroglycerin	55-63-0
Nitromethane	75-52-5
Ozone	10028-15-6
Phosgene	75-44-5
Phosphine	3803-51-2
Phosphorus Trichloride	7719-12-2
Stilbene	7803-52-3
Sulfur Chloride	0025-67-9
Toluene Disocynate	584-84-9
Vinyl Chloride	5-01-4

Never use cartridges after the expiration date printed on the label. All cartridge respirators must be inspected, cleaned, maintained, and stored in a sanitary manner by a competent person.

Air-Line Respirators

Air-line respirators protect against all airborne contaminants in concentrations that are not immediately hazardous to life or health. The air-line respirator consists of a half-mask, full facepiece, hood, or helmet to which respirable air is supplied. Three types of air supplies may be used:

- Continuous flow maintains the mask under positive pressure
- Demand air flow supplies air only when the wearer inhales
- Pressure demand keeps the mask under positive pressure, but limits air requirements

Compressed air must meet Class "D" breathing air. This requires that carbon monoxide levels not exceed 20 ppm, carbon dioxide not exceed 1,000 ppm, and condensed hydrocarbons not exceed 5 mg/m³.

With internally-oil-lubricated piston-type compressors, over-heating may produce carbon monoxide. Weekly tests for carbon monoxide must be made.

If a continuous monitor is not in place, a high temperature alarm must be. High temperature and continuous carbon monoxide alarms should be placed in the operating engineer's shack, with written procedures of what to do if the alarm goes off. Accurate records must be kept on all calibration, maintenance, and the measurements of carbon monoxide measuring equipment, high temperature alarm, and the compressor itself.

When compressed air is used for breathing air, a trap and carbon filter must be installed in line to remove oil, water, scale, odor, and taste. A pressure reducing valve must be installed to reduce air pressure to respirator requirements, along with the above carbon monoxide requirements. Plant-compressed air must never be used for breathing air when an antifreeze has been injected into the system.

A buddy system based on pre-established rescue procedures must be used when using air-line respirators. Employees must be trained in their proper use and limitations. Also, the respirators must be properly inspected, cleaned, and maintained after each use.

Training

Selecting the appropriate respirator for a given hazard is important. Using it properly is equally important. Proper use is ensured by carefully training safety personnel,

supervisors, and the employees in the selection, use, and maintenance of respirators. The training must include the following:

- Handling the respirator
- Demonstrations and practice in wearing, adjusting, and determining the fit of the respirator
- Testing of facepiece to face seal
- Wearing in normal air
- Wearing the respirator in a test atmosphere
- Positive and negative pressure checks
- Discussions of the engineering and administrative controls in use and why respirators are needed
- *Explanation of the nature of the respiratory hazard and what happens when the respirator is not used properly*
- Explanation of why a particular type of respirator has been selected
- Discussion of how to recognize and handle emergencies
- Recognize the appropriate type of filter and its requirements and limitations

Supervisor Training

Supervisors must have thorough knowledge of respirators and respiratory protection practices. Their training must include, but not necessarily be limited to:

- Basic respiratory protection practices

- Selection and use of respirators to protect employees against every hazard to which they may be exposed
- Legal requirements pertinent to the use of respirators
- Supervisor's responsibilities

Employee Instruction and Training

The extent and frequency of employee training depends primarily on the nature and extent of the hazard. If the hazard is a nuisance dust, for example, the danger from the nuisance dust is not likely to be serious. However, a single exposure to highly toxic substances may have serious consequences.

Because proper respirator use depends especially on the wearer's motivation, it is important that the need for the respirator be explained fully. The basic training program must include:

- Instruction in the nature of the hazard, whether acute, chronic, or both, and an honest appraisal of what may happen if the respirator is not used
- Discussion of why this is the proper type of respirator for a particular purpose
- Discussion of the respirator's capabilities, limitations, and proper fit-testing procedures
- Instruction, training, and actual use of respirator (especially one for emergency use) and close, frequent supervision to ensure that it continues to *be used properly*
- Classroom and field training in recognizing and coping with emergencies
- Other special training, as required, depending on the exposure hazard

Most respirator manufacturers have established respirator training programs that are available to their customers.

When employees test the facepiece-to-face seal of the respirator and wear it in a test atmosphere, the respirator head straps must be as comfortable as possible. These tests are then performed:

- Negative Pressure Test. This test can be done in the field. It consists of closing off the inlets of the canister, cartridge(s), or filter(s) by covering them with the palm of the hand, replacing the seals over the canister or cartridge inlets, or squeezing the breathing tubes so that air cannot pass. Then one inhales gently so the facepiece collapses slightly. The breath is held for ten seconds. If the facepiece remains slightly collapsed and no inward leakage is detected, the respirator is probably tight enough. This test must only be used as a very gross determination of fit.
- Positive Pressure Test. This test is conducted by closing off the exhalation valve and exhaling gently into the facepiece. The fit is considered satisfactory if slight positive pressure can be built up inside the facepiece without any evidence of outward leakage. This test is easy and should be performed just before entering any hazardous atmosphere.
- Banana Oil, Sucrose Water, or Irritant Smoke Test. This test involves exposing the respirator wearer to one of the commercially available test kits. It is performed according to the manufacturer's recommendations. In general, the fitting test should be performed as follows:
 1. Put on the respirator in a normal manner, in an area that is not saturated with the material.
 2. Walk into the area with the test material.

3. If you detect the test material, tighten the respirator without producing discomfort and repeat Step 2.
4. Different tests and actions must be performed while being fitted.
5. Describe the smell/taste of the material.

During the test, the employee should make movements that approximate a normal working situation. These may include the following:

- Normal breathing.
- Deep breathing, such as during a heavy exertion period (this should not be done long enough to cause hyperventilation).
- Slowly perform side-to-side and up-and-down head movements (these movements should be exaggerated, but should approximate those that take place on the job).
- Talking (this is most easily accomplished by reading a prepared text loudly enough to be understood by someone standing nearby). This test is called "The Rainbow Passage" and can be found in the OSHA standard.

Self-Contained Breathing Apparatus

Self-contained breathing apparatus (SCBA) provide respirator protection in oxygen-deficient environments and where high or unknown concentrations of toxic gases, vapor(s), or particles are present. SCBAs are divided into three basic types, with the pressure/demand being the preferred type on the construction job site:

- Demand or pressure demand
- Self-generating
- Liquid or compressed oxygen, for closed (rebreathing) devices

SCBAs can only be used during escape and rescue. Positive pressure SCBAs provide a higher degree of protection than demand closed circuit equipment and are generally preferred. All SCBA equipment must have a functioning "remaining service indicator" or working device that alarms when only 20-25 percent of service time remains.

SCBAs are approved as complete systems only. The interchange of parts using a manufacturer's cylinders with the same pressure ratings is acceptable only if the manufacturer specifies so in writing.

Oxygen must not be used to fill SCBA tanks. The entire respirator is specifically designed for oxygen use. Follow the manufacturers' instructions for SCBA use and cylinder charging. Cylinders must only be charged by certified employees or facilities.

SCBA Checklist System

A SCBA checklist system must be established and all relevant data recorded. The checklist must be performed on a periodic basis to ensure that all SCBA equipment works in an emergency situation. As a minimum this should be done monthly.

Emergency Storage

It is recommended that one or more easily accessible locations on the job site be reserved for a rescue box that is labeled "Emergency Rescue Equipment, Authorized Personnel Only." The rescue box should contain SCBA equipment, back-up bottles, and other rescue equipment such as ropes, harnesses, and flashlights. These boxes must be tagged and inspected monthly.

Training

The SCBA may be one of the most important pieces of protective equipment used during emergencies. It gives complete respiratory protection in any atmosphere. This section gives a generalized training section for open circuit SCBA units. For specific instruction, consult the SCBA manufacturer's manual.

Employees who use the SCBA must be able to put it on fast and efficiently in an emergency. Training sessions must be in-depth and realistic. For example, an employee should put on the SCBA periodically. At least once a year it should be worn during a training session that includes strenuous work, working on and climbing ladders, and working or moving in close or narrow passageways by all members of the emergency rescue team.

Preparing the SCBA for storage is very important, since the unit must be ready instantly for the next emergency. When putting it back in a compartment or case check the following:

- Straps are in the proper position
- Waist buckle is in the proper position
- Pressure in the system has been bled off
- All strap buckles are open to the extreme loose position
- Cylinder is recharged, if necessary
- Unit has been cleaned and sanitized immediately after each use
- Face mask is stored in a sealed plastic bag

Inspections

General inspection of the SCBA equipment must be done monthly to ensure equipment readiness. This inspection must assure that all SCBA related equipment is in place and in a ready mode. A periodic inspection is needed to ensure proper operation of the SCBA equipment. (Figure 10-10). It includes the following steps:

- Put on breathing apparatus.

- Check its normal regulator cycling while doing strenuous work or taking extremely deep breaths.
- Check functioning of emergency bypass.
- Disconnect breathing tube from regulators and place bottom of tube tightly on palm. Inhale to check seal. Reconnect breathing tube.
- Take off breathing apparatus and close cylinder.
- Observe both gauges to see if they correspond, and check for air leaks in the system.
- Check emergency bypass to see if main line valve is closed or use facepiece and slowly reduce air pressure on regulator gauge to determine that the audible alarm activates at the proper pressure.
- Inspect the condition of straps on harness.
- Check the tightness of screws and fasteners on straps, regulator bracket, and all valve handles.
- Check locking devices on the main line valve, cylinder valve, and carrier to secure cylinder.
- Check holes in the diaphragm cap on the regulator to see if open.
- Check to see that the facepiece is clean.
- Check to see that the headband is in good condition.
- Check to see that the exhalation or inhalation valve is not sticking or held open.
- Check to see that the speaking diaphragm and gasket are in correctly.

- Store the apparatus in a sealed plastic bag.
- Check that gaskets are in good condition at:
 - Regulator side of breathing tube
 - Facepiece where breathing tube connects
 - Speaking diaphragm assembly
 - O-ring in coupling that connects to cylinder valve
- Check that audible alarm bell cap is tight.
- Check that hydrostatic test data is current. (Normally, this is stamped on the cylinder by the manufacturer.)
- Check that the cylinder pressure is at least 1500 psi, 1800 psi, or 4000 psi, depending on the model.

Respirator Assignment

Whenever practical, respirators should be assigned on an individual basis and marked with the employee's identification number:

- **Approved Equipment:** Respirator approval is granted by NIOSH/MSHA via test certification numbers. Sites should specify to vendors that only NIOSH/MSHA approved equipment will be accepted. All component and replacement parts must also have NIOSH/MSHA approval. In addition, respirators are approved as a system. Cartridges, canisters, filters, air lines, and regulators cannot be interchanged among equipment of a given manufacturer unless specifically approved by the manufacturer in writing.
- **Disposable Equipment:** The use of disposable respiratory protection devices eliminates the need to clean, disinfect, inspect, and repair equipment. While

the total cost of disposable equipment may, in some cases, be higher than comparable reusable devices, this cost may be offset by savings of labor and investment for cleaning, inspection, and storage facilities.

Special Use Problems

Every respirator wearer must receive respirator fitting instructions that include demonstrations and practice sessions at least on an annual basis. Respirators must not be worn if the face seal is not good because contaminated air could enter the facepiece. A good seal can be obstructed by a beard, sideburns, scars, hollow temples, excessively protruding cheekbones, deep creases in facial skin, the absence of teeth or dentures, a skull cap that projects under the facepiece, or temple pieces on glasses. Even a few days' growth of beard will permit contaminants to enter. Therefore, employees with facial hair must not be permitted to wear respirators, eliminating them from emergency response teams. Providing respiratory protection for individuals wearing corrective glasses is a serious problem. A proper seal cannot be established if the temple bars of eye glasses extend through the sealing edge of the full facepiece. As a temporary measure, glasses with short temple bars or without temple bars may be taped to the wearer's head. Wearing of contact lenses is not permitted.

Cold Weather Use of Respirator

Under cold weather conditions, problems can develop such as fogging of full facepiece respirators, valve sticking, and rubber stiffness that prevents a good facial seal. Fogging can be eliminated easily by installing a nose cup into the facepiece. There are also de-fogging agents available from respirator vendors.

Voice Communication

Under some conditions, respirator wearers must communicate with other personnel within or outside the contaminated area. When this is necessary, special communication equipment can be installed inside the faceplate.

Maintenance and Cleaning

Respirator maintenance must be an integral part of the overall respirator program. Wearing a poorly maintained or malfunctioning respirator is more dangerous than not wearing one at all. Respirators are particularly vulnerable to poor maintenance because (1) they are used infrequently, and (2) they are used in the most hazardous and demanding circumstances.

The OSHA standard strongly emphasizes the importance of an adequately maintained program. All programs are required to include at least the following:

- Inspection for defects
- Repair
- Cleaning and disinfecting after each use
- Storage

Inspection Procedures and Repair

The OSHA standard states that the respirator inspection must include checking the following:

- Tightness of the connections
- Facepiece
- Valves
- Connecting tubes
- Canisters, filters, or cartridges

In addition, the standard also states that the regulator and warning devices on a SCBA must be checked for proper function.

If defects are found during any field inspection, two remedies are possible. If the defect is minor, repair or adjustment may be made on the spot. If it is major, the device should be removed from service for repair. Under no circumstances should a defective device remain in the field. Respirator cleaning usually involves some disassembly which presents a good opportunity to examine each respirator thoroughly for defects.

Cleaning and Disinfecting

Routinely used respirators must be collected, cleaned and disinfected as frequently as necessary. They should be exchanged daily for cleaning and inspection. Where respirators are used only occasionally, the exchange period may be weekly or monthly. Emergency use respirators must be cleaned and disinfected after each use. The respirators must be kept in a sanitary manner between usage and the exchange period.

At sites where large numbers of respirators are used, a centralized cleaning and maintenance facility should be established with specialized equipment and personnel trained in respirator maintenance.

The actual cleaning may be done in a variety of ways. Any good detergent may be used, followed by a disinfecting rinse or a combination disinfectant/detergent for a one-step operation.

To avoid damaging the rubber and plastic in the respirator facepieces, the cleaning water should be between 120° F and 140° F. A dishwasher may be used for this type of cleaning.

To prevent dermatitis, the cleaned and disinfected respirator should be rinsed thoroughly in water to remove all traces of detergent and disinfectant.

The respirator may be allowed to dry in room air (free of dust) on a clean surface. It may also be hung from a horizontal wire, like drying clothes, but care must be taken not to damage or distort the facepiece.

Storage

Respirators must be stored to protect against the following;

- Dust
- Sunlight
- Heat
- Extreme cold
- Excessive moisture
- Damaging chemicals
- Mechanical damage

Freshly cleaned respirators should be placed in heat-sealed or sealed plastic bags until re-issued. They should be stored in a clean, dry location away from direct sunlight, and placed in a single layer with the facepiece and exhalation valve in an undistorted position. This prevents rubber or plastic from taken a permanent distorted "set".

Although disposable respirators do not have to be cleaned or disinfected, they should always be stored in the manner described above when not in use. All disposable respirators can only be used one time.

TABLES
FIGURES

EXTREMELY HAZARDOUS CHEMICALS

Name	Chemical Abstract Service Registry Number*
Acrylonitrile	107-13-1
4-Aminodiphenyl (p-Xenylamine)	92-67-1
Amitrol	61-82-5
Antimony Trioxide	1327-33-9
Arsenic	7440-38-2
Arsenic Trioxide	1327-53-3
Asbestos	1332-21-4
Benzene	71-43-2
Benzidine	92-87-5
Benzo(a)pyrene	50-32-8
Beryllium	7440-41-7
bis (chloromethyl) ether	542-88-1
Cadmium	7440-43-9
Carbon Tetrachloride	56-23-5
Chloroform	67-66-3
Chloromethyl Methyl Ether	107-30-2
Chromates of Lead and Zinc	18454-12-1 and 13530-65-9
Chromite Ore	
Chromium	7440-47-3
Chrysene	8007-45-2
Coal Tar Pitch Volatiles	8007-45-2
3, 3' - Dichlorobenzidine	91-94-11
Dimethylcarbaryl Chloride	79-44-7
1, 1 - Dimethyl Hydrazine	57-14-7
Dimethyl Sulfate	77-78-1
Ethylene Dibromide	106-93-4
Ethylene Oxide	75-21-8
Formaldehyde	50-00-0
Hexachlorobutadiene	76-68-3
Hexamethyl Phosphoramide	680-31-9
Hydrazine	302-01-2
Lead	7439-92-1
4, 4' - Methylene bis (2-Chloroaniline)	104-14-4
Methyl Hydrazine	60-34-4
Methyl Iodine	74-88-4
B - Naphthylamine	91-59-8
Nickel Sulfide	7440-02-0
4 - Nitrodiophenyl	92-93-0
2 - Nitropropane	79-46-9
N - Nitrosodimethylamine	62-75-9
N - Phenyl-beta-naphthylamine	135-88-6
Phenylhydrazine	100-63-0
Propane Sultone	1120-71-4
beta-Propyolactone	57-57-8
Propylene imine	75-55-8
- Tolidine	119-93-7
- Toluidine	95-53-4
Vinyl Bromide	593-60-2
Vinyl Chloride	75-01-4
Vinyl Cyclohexane Dioxide	106-87-6

*This is a numeric designation assigned by the American Chemical Society's Chemical Abstracts Service and uniquely identifies a specific chemical compound. This allows one to conclusively identify a substance regardless of the name or naming system used.

Table 1-A. Extremely Hazardous Chemicals

U. S. DEPARTMENT OF LABOR Occupational Safety and Health Administration		Form Approved OMB No. 44-R1387	
MATERIAL SAFETY DATA SHEET			
Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)			
SECTION I			
Manufacturer's Name		Emergency Telephone No.	
Address (Number, Street, City, State, and ZIP Code)			
Chemical Name and Synonyms		Trade Name and Synonyms	
Chemical Family		Formula	
SECTION II - HAZARDOUS INGREDIENTS			
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS
Pigments			Base Metal
Catalyst			Alloys
Vehicle			Metallic Coatings
Solvents			Filler Metal Plus Coating or Core Flux
Additives			Others
Others			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES			%
			TLV (Units)
SECTION III - PHYSICAL DATA			
Boiling Point (°F.)	Specific Gravity (H ₂ O = 1)		
Vapor Pressure (mm Hg.)	Percent, Volatile by Volume (%)		
Vapor Density (Air = 1)	Evaporation Rate (= 1)		
Solubility in Water			
Appearance and Odor			
SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
Flash Point (Method Used)	Flammable Limits		Le _i U _e _i
Extinguishing Media			
Special Fire Fighting Procedures			
Unusual Fire and Explosion Hazards			

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(Continued on reverse side)

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Figure 1. Material Safety Data Sheet (Front of form)

SECTION V - HEALTH HAZARD DATA			
Threshold Limit Value			
Effects of Overexposure			
Emergency and First Aid Procedures			
SECTION VI - REACTIVITY DATA			
Stability	Unstable		Conditions to Avoid
	Stable		
Incompatibility (<i>Materials to Avoid</i>)			
Hazardous Decomposition Products			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur		
SECTION VII - SPILL OR LEAK PROCEDURES			
Steps to be Taken in Case Material is Released or Spilled			
Waste Disposal Method			
SECTION VIII - SPECIAL PROTECTION INFORMATION			
Respiratory Protection (<i>Specify type</i>)			
Ventilation	Local Exhaust	Special	
	Mechanical (<i>General</i>)	Other	
Protective Gloves			Eye Protection
Other Protective Equipment			
SECTION IX - SPECIAL PRECAUTIONS			
Precautions to be Taken in Handling and Storing			
Other Precautions			

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Figure 1. (Cont'd.)

CONVERSION TABLE - STPD TO BTPS

Ambient Temperature °C	Aqueous Vapor Pressure (mmHg)	Factor to Convert to: STPDBTPs		BTPS from 25°C
14	12.0	0.936	1.333	1.054
15	12.8	0.932	1.128	1.049
16	13.6	0.928	1.123	1.045
17	14.5	0.924	1.118	1.040
18	15.5	0.920	1.113	1.035
19	16.5	0.916	1.108	1.031
20	17.5	0.911	1.102	1.025
21	18.7	0.906	1.096	1.020
22	19.8	0.902	1.091	1.015
23	21.1	0.897	1.085	1.009
24	22.4	0.893	1.080	1.005
25	23.8	0.888	1.075	1.000
26	25.2	0.883	1.069	.994
27	26.7	0.878	1.063	.989
28	28.3	0.874	1.057	.983
29	30.0	0.869	1.051	.978
30	31.8	0.864	1.045	.972
31	33.7	0.859	1.039	.966
32	35.7	0.853	1.032	.960
33	37.7	0.848	1.026	.952
34	39.9	0.843	1.020	.949
35	42.2	0.838	1.014	.943
36	44.6	0.832	1.007	.937
37	47.1	0.826	1.000	.930

Table 1-B. Conversion Table

INDUSTRIAL HYGIENE MONITORING DATA SHEET

Jobsite name: _____ Number: _____ Date: _____

Contaminant sampled: _____

Sampling equipment (name, number, manufacturer): _____

Calibration of sampling equipment: (Type) _____ (Date) _____

Location of contaminant: _____

Contaminant source: _____

Number and titles of employees exposed: _____

Measured contaminant (P.P.M., mg/m³, %, L.E.L.) and date measured: _____

Personal protective equipment worn: _____

Controls (i.e., ventilation, shielding, administrative): _____

Solutions to problem: _____

Additional comments: _____

Surveyed by _____

Figure 1-2. Industrial Hygiene Monitoring Data Sheet

Respirator Care and Maintenance Record

Jobsite Name: _____ Number: _____

Respirator Manufacturer and Number (Jobsite Identification Number if Assigned)	Maintenance Performed	Date Performed	Cleaned and Sanitized	Performed By	Other

Figure 1-3. Respirator Care and Maintenance Record

Emergency Equipment Monthly Inspection Sheet

Jobsite name _____ Number _____

Date _____ Location _____

Inspected by _____

Storage Area

- Is all safety equipment easily accessible? _____
- Has the storage container been tampered with? _____
- Is the storage container easily identified? _____

Self-Contained Breathing Apparatus?

- What is the equipment name and number? _____
- Where is it located? _____
- What is the regulator setting? _____
- Is the facepiece stored in sealed plastic bag? _____
- Are all straps in their proper place and ready to use? _____
- How many extra breathing cylinders are there? _____
- Other comments _____

List of additional equipment and its condition (i.e., life lines, harnesses, flash lights, etc.) _____

Figure 1-4. Emergency Equipment Inspection Sheet

Respiratory Protection Education and Fit Testing

This is to confirm that I, _____
(name) (Craft)

_____ was educated and fit tested for _____
(Employee #) respirator(s).

I thoroughly understand the uses for and benefits of wearing a respirator and will use what I have

learned on ____ / ____ / ____ when a respirator is necessary for my job.
(Date)

Trained and fitted by: _____

Date: _____

Figure 1-5. Respiratory Protection Education and Fit Testing

Respirator Usage List

Jobsite Name: _____ Number: _____

Employee Name and Craft Number	Date	Respirator (Name and Number)	Location of Work	Work Hazards	Respirator Issued By	Other

Figure 1-6. Respirator Usage List

REPORT OF MEDICAL EXAMINATION

(This information is for official and medically confidential use only and will not be released to unauthorized persons.)

Last Name - First Name - Middle Name (Print)				Social Security		Date of Birth	
Address (No. Street or RFD, City or Town, State and Zip Code)						Age	
Purpose of Examination: Evaluate Ability to Wear Respirator			Date of Exam		Examining Facility		
Statement of Examinee's Present Health and Medications Currently Used (Follow by description of past history, if complaint exists):							
Have you Ever (Please check each item)				Do You (Please check each item)			
Yes	No	(Check Each Item)		Yes	No	(Check Each Item)	
		Coughed up blood				Wear contact lenses	
		Bled excessively after injury or tooth extraction				Wear glasses	
		Smoked				Have vision in both eyes	
						Wear a hearing aid	
						Presently smoke	
Have You Ever Had or Have You Now (Please check at left of each item)							
Yes	No	Don't Know	(Check each item)	Yes	No	Don't Know	(Check each item)
			Frequent or severe headache				Chronic cough
			Dizziness or fainting spells				Palpitation or pounding heart
			Eye trouble				Heart trouble
			Ear, nose, or throat trouble				High or low blood pressure
			Ruptured ear drum				Recent gain or loss of weight
			Hearing loss				Loss of memory or amnesia
			Chronic or frequent colds				Nervous trouble of any sort
			Severe tooth or gum trouble				Periods of unconsciousness
			Sinusitis				Claustrophobia
			Hay fever				Facial abnormalities
			Head injury				Rheumatic fever
			Tuberculosis				Inability to perform certain motions
			Asthma				Inability to assume certain positions
			Shortness of breath				Other medical reasons
			Pain or pressure in chest				(If yes, give reasons)
I have reviewed this information, supplied by me. It is true and complete to the best of my knowledge:							
Date _____				Employee's Signature _____			

Figure 1-7. Report of Medical Examination

REPORT OF MEDICAL EXAMINATION

Clinical Evaluation			Notes: (Describe every abnormality in detail)
Normal	(Check each item in appropriate column, enter "NE" if not evaluated)	Abnormal	
	Head, Face, Neck		
	Nose		
	Sinuses		
	Mouth and Throat		
	Ears - General		
	Drums (Perforation)		
	Lungs and Chest		
	Heart		
	Vascular System		

Weight	Pulse Rate	Blood Pressure, S-	D-
Height	Sex	Race	
Pulmonary Lung Function Test Results: FVC _____ % FEV ₁ _____ % FEV ₁ /FVC _____ % <div style="text-align: right; margin-top: 10px;">BTPS Factor _____</div>			
Recommendation - Further Specialist Examinations Indicated (Specify): <div style="height: 40px;"></div>			

Typed or Printed Name of Examiner	Signature
Examinee (Check) A <input type="checkbox"/> Is Medically Qualified to Wear a Respirator B <input type="checkbox"/> Is Not Medically Qualified to Wear a Respirator	
Typed or Printed Name of Physician	Signature

Figure 1-7. (Cont'd.)

Date _____

Dear Doctor,

Mr./Ms. _____, an employee of Environmental Contractors of Illinois, Inc., (ECI) has been evaluated by a pulmonary function screening test to determine his/her physical fitness for using a respirator apparatus.

The results of Mr./Ms. _____'s spirometry test indicate him/her to have a borderline level of FEV, 75 to 60% and/or - - 70 to 55% of the norm.

We have advised him/her to seek an evaluation by a licensed physician of his/her choice to determine and advise ECI in writing whether he/she is physically capable of working while wearing a respiratory apparatus.

Signed _____

Title _____

Figure 1-8. Sample Letter Advising Physician's Evaluation of Fitness For Respirator

SELF-CONTAINED BREATHING APPARATUS

Monthly Inspection

Date: _____

Job Number: _____ Name: _____

Equipment Location: _____

Equipment Manufacturer: _____ Serial Number: _____

Inspections Completed By: _____ Title: _____

	Yes	No	N/A
1. Face Piece			
Excessive Dirt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cracks, tears, or physical distortion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inflexibility of facepiece	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cracked, badly scratched, broken, or chipped lenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incorrectly mounted lenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Head Harness			
Breaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loss of elasticity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broken or malfunctioning buckles and attachment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excessively worn (could cause slippage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Exhalation Valve (examine after removing cover)			
Foreign material under valve seat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cracks, tears, or distortion in valve material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improper insertion of valve body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cracks, breaks, or chips in valve body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Missing or defective valve cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improper installation of valve in valve body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Breathing Tube			
Broken or missing end connectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Missing or loose hose clamp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holes, cracks, deterioration, or stretching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Compression			
Cylinder fully charged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Pressure Hosing			
Broken or missing end components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Missing or loose hose clamp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holes, cracks, deterioration, or stretching in hose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Pressure Regulator			
Caps and pressure spring in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No adverse visual effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Field test of regulator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Alarm			
Test low level alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Support Belts and Structure

Belts complete and undamaged

☐☐☐

Support structure complete and undamaged

☐☐☐

Figure 1-10. SCBA Inspection Form

ATTACHMENT F

Fugitive Air Emissions Monitoring Log

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.
OFF-SITE CONTAINMENT AREA
FUGITIVE AIR EMISSIONS MONITORING LOG

Date: _____ Temp/Wind Speed & Direction: _____

			/	/	/	/
			/	/	/	/
			/	/	/	/
			/	/	/	/
			/	/	/	/
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			/	/	/	/
			/	/	/	/
			/	/	/	/
			/	/	/	/
			/	/	/	/
Complaints/Symptoms:						
Chemicals/Equipment in Use:						
Engineering Controls:						
PPE in Use:						
Observation/Comments:						

Analyst: _____
Health & Safety Officer
Environmental Contractors of Illinois, Inc.

ATTACHMENT G

Hospital Route Map

HOSPITAL ROUTE

TOTAL DISTANCE - 8 MILES (ABOUT 15-20 MINUTES)

← TO CHICAGO

INTERSTATE I-80/I-94

RIDGE ROAD OR ROUTE 6

**MUNSTER
COMMUNITY
HOSPITAL**

(219) 836-5167
9003 CALUMET AVE.
MUNSTER, IN 46321

CALUMET AVE.

INDIANAPOLIS BLVD.

CLINE AVE.

COLFAX AVE.

45th AVE. ←

DIRECTIONS

- FROM THE ACS FACILITY, TURN LEFT (NORTH) ON COLFAX AVE.
- TURN LEFT (WEST) ON 45th AVE.
- TURN RIGHT (NORTH) ON CALUMET AVE.
- TURN RIGHT (EAST) INTO THE HOSPITAL.

MAIN STREET

RAILROAD TRACKS

**MWH OFFICE
AT ACS SITE**

(219) 924-4607
410 S. COLFAX AVE.
GRIFFITH, IN 46319

SCALE
NOT TO SCALE



MWH
MONTGOMERY WATSON HARZA

ACS RD/RA GROUP
AMERICAN CHEMICAL SERVICE
SUPERFUND SITE
GRIFFITH, INDIANA

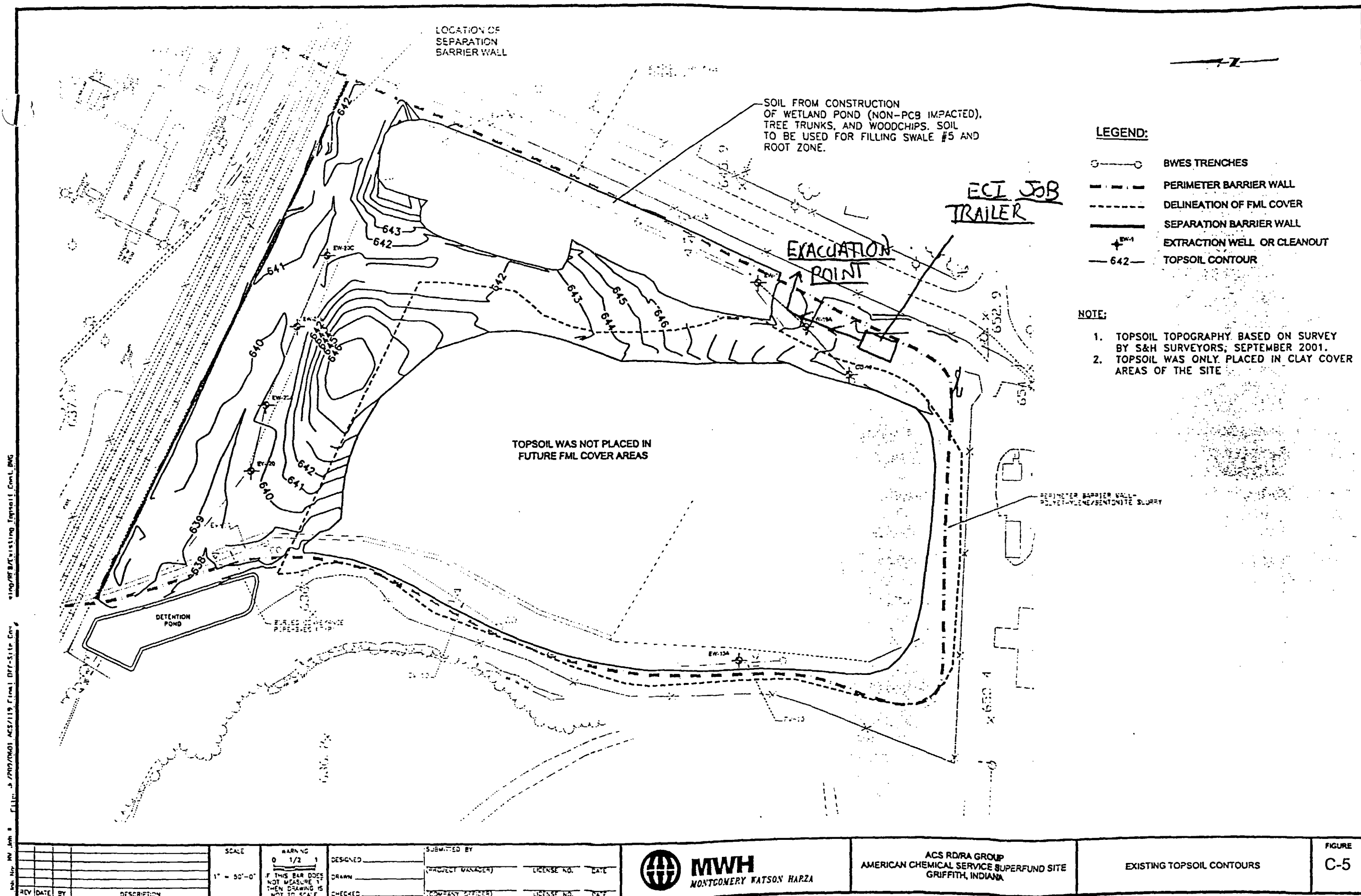
SITE LOCATION MAP AND
HOSPITAL ROUTE

FIGURE

8-1

ATTACHMENT H

Evacuation Route Diagram



ATTACHMENT I

Site Personnel Record

OFF-SITE CONTAINMENT AREA

[illegible]

ATTACHMENT J

Material Safety Data Sheets

All Material Safety Data Sheets (MSDS) will be available for review in ECI's job trailer. ECI maintains a binder with MSDSs for all products/materials that ECI or ECI's subcontractors may use.

ATTACHMENT K

Employee Certifications



FERGUSON • HARBOUR
I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT
to

David Byrd

for successful completion of

**8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120**

February 9th, 2001

Training Director- Turner Davidson

Instructor- Turner Davidson



FERGUSON • HARBOUR
I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT
to

Kyle Cuplin

for successful completion of

***8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120***

February 9th, 2001

Training Director- Turner Davidson

Instructor- Turner Davidson

**HAZARDOUS WASTE WORKER
REFRESHER TRAINING COURSE**

NAME: Jerry Freeman	
S.S.#: 548-78-5624	
DATE COMPLETED INITIAL COURSE: 8/3/88	REFRESHER COMPLETION DATE: 2/11/02
NEXT REFRESHER TRAINING DUE WITHIN ONE YEAR OF THE REFRESHER COMPLETION DATE. 2/11/03	
CERTIFICATE#: 54878562441330201	

COMPLIES WITH OSHA REGULATION 29 CFR 1910.120



Quest
Diagnostics

REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5517 (Regional Laboratory)

1-800-631-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

RNA NO. 815 635 4304

P. 01

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 14D0417052
MEDICARE CERTIFICATE: 14-8225

PATIENT				FINAL REPORT <input type="checkbox"/>		ACCOUNT NO.		ROUTE/STOP	
TERRY L. FISH				PARTIAL REPORT <input type="checkbox"/>		40011574		101150.	
SEX	AGE	PATIENT ID	DRAWN DATE AND TIME		PHYS. IMM. CARE-LOVE PARK		RIVERSIDE		
		54979363			1000 E RIVERSIDE BLVD				
SPECIMEN NO.		HOSP. NO.		DOCTOR		RECEIVED DATE			
5778293						03/15/02		LOVES PARK, IL 61111	
COMMENTS						REPEATS AND DATE 51111			

TEST NAME	RESULTS		UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE	OUTSIDE REFERENCE RANGE		

Client Site Location: PIC RIVERSIDE - PIC RIVERSIDE

REASON FOR TEST: RANDOM

DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR:

PHYS. IMM. CARE-LOVE PARK - 40011574
RIVERSIDE
1000 E. RIVERSIDE BLVD
LOVES PARK, IL 61111

DATE: 3/12/02 1122
Result: ☒ NEG
☒ POS

Tests Ordered: 35536N (SAP 10-50/300 GC/MS) EMPID (ID):

Employer/Donor Information

Contact: Rae Lynn
Initials: B

EMPLOYEE ID

ENVIRONMENTAL CONT: Initials:


Substance Abuse Panel

Initial Test Level GC/MS Confirm Test Level

AMPHETAMINES	Negative	1000 ng/mL	500 ng/mL
BARBITURATES	Negative	300 ng/mL	200 ng/mL
BENZODIAZEPINES	Negative	300 ng/mL	200 ng/mL
COCAINE METABOLITES	Negative	300 ng/mL	150 ng/mL
MARIJUANA METABOLITES	Negative	50 ng/mL	15 ng/mL
METHADONE	Negative	300 ng/mL	200 ng/mL
METHAQUALONE	Negative	300 ng/mL	200 ng/mL
OPIATES	Negative	300 ng/mL	300 ng/mL
PHENCYCLIDINE	Negative	25 ng/mL	25 ng/mL
PROPOXYPHENE	Negative	300 ng/mL	200 ng/mL

CERTIFYING SCIENTIST: KATHY KEOSH

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAMBURG DHS CERTIFIED LABORATORY.
)) END OF REPORT ((

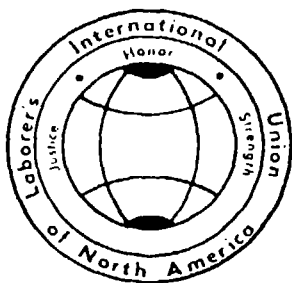
HAZARDOUS WASTE WORKER TRAINING 80-HOUR TRAINING COURSE for WORKERS	
	Name:
	Jerry Freeman
	SS #: 548-78-5624
	Issued: 8/10/88 Retraining Date: 8/89
Certificate #: L2-210-888	

HAZARDOUS WASTE WORKER TRAINING 8-HOUR REFRESHER COURSE for WORKERS	
Name:	
JERRY L. FREEMAN	
SS #: 548-78-5624	
Date Completed 80-Hour Course:	Date of Re- resher Training:
8/88	5/26/90
Next Refresher Due Prior To:	
5/91	
Certificate #:	
L2-210-0590	
<small>Complies with OSHA Regulation 29 CFR 1910.120</small>	

HAZARDOUS WASTE WORKER TRAINING 8-HOUR REFRESHER COURSE for WORKERS	
Name:	
JERRY L. FREEMAN	
SS #: 548-78-5624	
Date Completed 80-Hour Course:	Date of Re- resher Training:
8/10/88	6/10/89
Next Refresher Due Prior To:	
06/90	
Certificate #:	
L2-210-0689	

Certificate of Training

Willard R. Wilkinson Laborers' Training Center



This is to certify that




JERRY FREEMAN

has successfully completed the course requirement
for

HAZARDOUS WASTE WORKER TRAINING

on August 10, 1988


Steve Holland, Secretary-Treasurer


Barry Wilkinson, Chairman of the Board

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company RKfd, Blacktop / ECI Fax _____
Attn.: Rae Lynn

FITNESS FOR DUTY RESULTS

Jerry Freeman was evaluated for fitness for work.
The results indicated that this person:

THESE RESULTS ARE ISSUED WITH DRUG TESTING & X-RAY REPORTS PENDING.

☒ IS FIT FOR DUTY

☐ May Commence Work Provided The Following Restrictions Can Be Met Through Reasonable Accommodation Or Do Not Interfere With The Performance Of Essential Functions Of The Job.

RESTRICTION: _____

☐ Has A Medical Condition Which Poses A Direct Threat To The Health And Safety Of The Person Or Others.

☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of The Americans With Disabilities Act.

[Signature]
Signature of Physician

12-31-01
Date

**HAZARDOUS WASTE WORKER
REFRESHER TRAINING COURSE**

NAME: Jerry Freeman	
S.S.#: 548-78-5624	
DATE COMPLETED INITIAL COURSE: 8/3/88	REFRESHER COMPLETION DATE: 2/11/02
NEXT REFRESHER TRAINING DUE WITHIN ONE YEAR OF THE REFRESHER COMPLETION DATE. 2/11/03	
CERTIFICATE#: 54878562441330201	

COMPLIES WITH OSHA REGULATION 29 CFR 1910.120



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME Gerry Freeman DATE 12-31-01
SOCIAL SECURITY NUMBER: 548-78-5624 BIRTH DATE 7-13-50
EMPLOYER Environmental Contractors, Inc.

Respirator Compliance Letter
(for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910. 134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated, and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.

Signature of Examining Physician

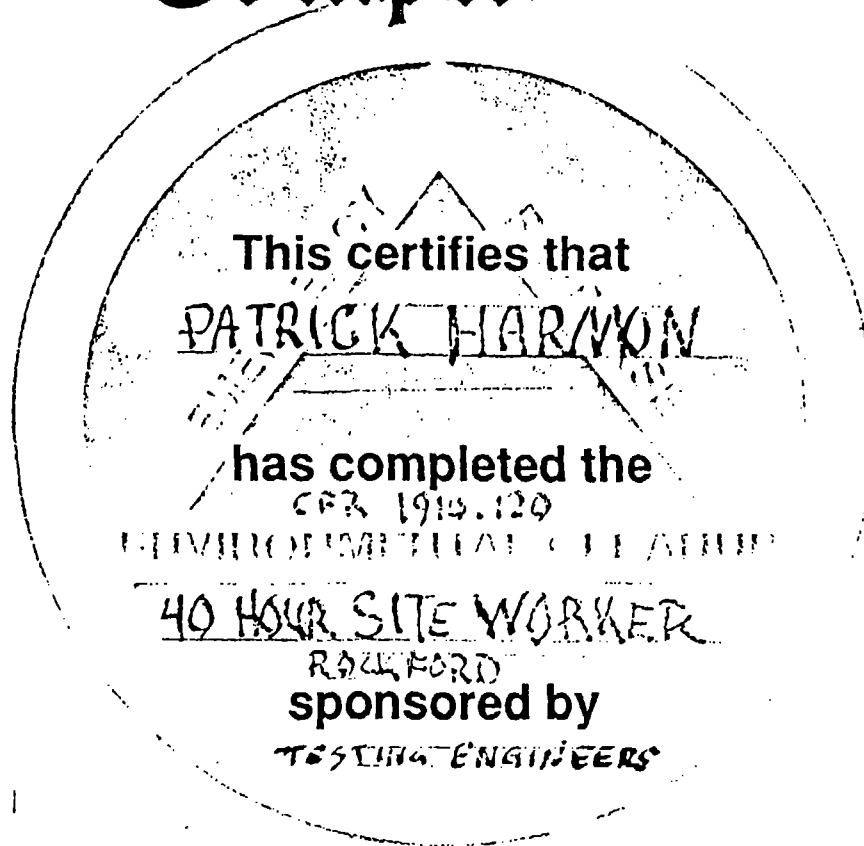
12-31-01

Date

SERIAL
803900001

AL HYGIENE

Certifi of Comple

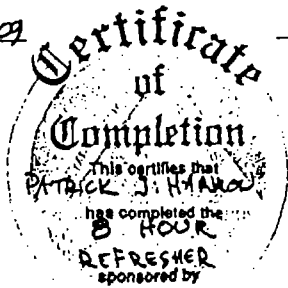


TRAINING PRESENTED BY
Patrick Harmon and Associates, Inc.

Patrick Harmon
COURSE DIRECTOR

Paul W. Sully
TRAINING COORDINATOR

01-19-1993-0001



N/A
INDUSTRIAL HYGIENE

Patrick Harmon
COURSE DIRECTOR

TRAINING PRESENTED BY
Patrick Harmon and Associates, Inc.

N/A
TRAINING COORDINATOR

SERIAL
805900001

Certificate of Completion

DEX TINGLE
INDUSTRIAL HYGIENE

This certifies that
PATRICK HARMON
has completed the
40 HOUR
SITE WORKER
sponsored by

Patrick Harmon
COURSE DIRECTOR

TRAINING PRESENTED BY
Patrick Harmon and Associates, Inc.

DALE SOLBERG
TRAINING COORDINATOR

SERIAL
08-14-1992-0001

Certificate of Completion

N/A
INDUSTRIAL HYGIENE

This certifies that
PATRICK HARMON
has completed the
8 HOUR
SUPERVISORS
sponsored by

Patrick Harmon
COURSE DIRECTOR

TRAINING PRESENTED BY
Patrick Harmon and Associates, Inc.

N/A
TRAINING COORDINATOR

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Jack Kemp

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Forty Hour Course
conducted by
Environmental Contractors of Illinois, Inc.*



Walt R. Kott

E.C.I. Safety Instructor

March 26, 1999

Date Certificate Issued

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Jack Kemp

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Eight Hour Refresher Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matt W. Kutt
E.C.I. Safety Instructor

February 16, 2001

Date Certificate Issued



Company Risk Management
Attn: Julie
Fax: 397-8353

DOT Drug test results. Original hard copy will follow in the mail.

Date tested: 325-40-5620
Patient SS#: 12-18-01

This specimen has been tested and found to be NEGATIVE.

Other results: EBT X
exam X
sight X
audio X

Robert Bertrand

Dr Robert Bertrand, MD/MRO
Sk

1335 Charles Street, Rockford, Illinois 61104-2267 Phone (815) 227-4700 Fax (815) 227-4700 391-5032
E-mail: ocmed@swedishamerican.org www.swedishamerican.org
A Subsidiary Of Swedish American Health System

DEC 19 01 10:51AM MEDWORKS NORTH JK

This is to certify that

Steven Lloyd

has successfully completed 40 hours of

Hazardous Materials Awareness Training in

Fully Encapsulated, SCBA'S, APR'S, SAR'S & MSA COMFO II RESPIRATOR

in accordance with 29 CFR 1910.120

Paul Wood

PAUL WOOD, Coordinator
Apprenticeship & Skill Improvement Program

William E. Dugan

WILLIAM E. DUGAN, President and Business Manager
I.U.O.E. Local 150

This is to certify that
STEVEN LLOYD

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).
☒ Has passed a Qualitative Fit Test with MSA Respirator(s).
☐ Comfo Classic ☐ Advantage 100 ☒ Advantage 1000 ³⁴⁰
☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☐ Ultra-Twin ³⁴⁰
Other _____ ☐ Sm ☐ Std ☐ Lg

Expiration Date 12-10-02
12-10-01 Thomas R Miller
Test Date Instructor



**Quest
Diagnostics**

REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5917 (Regional Laboratory)

1-800-831-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 14D0417053
MEDICARE CERTIFICATE: 14-8228

PATIENT NAME LOYD, STEVEN M			FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO. 40011549		ROUTE/STOP 101163X	
AGE	PATIENT ID 351522582	DRAWN DATE AND TIME 11/21/2001		PARTIAL REPORT <input type="checkbox"/>		MEDWORKS SOUTH		
PHASE NO. 3253015	HOSP. NO.	DOCTOR		RECEIVED DATE 11/22/2001		SHARON KAPPE		
						1335 CHARLES ST.		
						ROCKFORD, IL 61104		
REMARKS							REPORT DATE AND TIME 11222001 6:27AM	

TEST NAME	RESULTS		UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE	OUTSIDE REFERENCE RANGE		

Client Site Location: ENVCONTR - ENVIRONMENTAL CONTRACTORS, INC

REASON FOR TEST: PRE-EMPLOYMENT

DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR:

MEDWORKS SOUTH - 40011649

SHARON KAPPE

1335 CHARLES ST.

ROCKFORD, IL 61104

Tests Ordered: 35105N (SAP 5-50 W/NIT)

Integrity Checks

Acceptable Range

CREATININE

179.6 mg/dL

>20 mg/dL

NITRITES

Negative

pH

6.5

9.3-9.0

Substance Abuse Panel

Initial Test Level	GC/MS Confirm Test Level
--------------------	--------------------------

AMPHETAMINES

Negative

1000 ng/mL

500 ng/mL

COCAINE METABOLITES

Negative

300 ng/mL

150 ng/mL

MARIJUANA METABOLITES

Negative

50 ng/mL

15 ng/mL

OPIATES

Negative

2000 ng/mL

2000 ng/mL

PHENCYCLIDINE

Negative

25 ng/mL

25 ng/mL

CERTIFYING SCIENTIST: GRACE LEE

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAUMBURG DHHS CERTIFIED LABORATORY.

>> END OF REPORT <<

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Steve Lloyd

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Eight Hour Refresher Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matt W. Knott
E.C.I. Safety Instructor

March 29, 2001

Date Certificate Issued

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company ECI Fax _____

FITNESS FOR DUTY RESULTS

Steven Lloyd was evaluated for fitness for work.
The results indicated that this person:

**THESE RESULTS ARE ISSUED WITH DRUG TESTING &
X-RAY REPORTS PENDING.**

☒ IS FIT FOR DUTY

☐ May Commence Work Provided The Following Restrictions Can Be Met Through Reasonable Accommodation Or Do Not Interfere With The Performance Of Essential Functions Of The Job.

RESTRICTION: _____

☐ Has A Medical Condition Which Poses A Direct Threat To The Health And Safety Of The Person Or Others.

☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of The Americans With Disabilities Act.

2/1
Signature of Physician

11/21/01
Date

10/27-01 TUE 03:46 PM ECI
10/27-01 TUE 03:07 PM

PHX NO. 815 030 4304

P.09



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME STEVEN M. Lloyd DATE 11/21/01
SOCIAL SECURITY NUMBER: 351-52-258 BIRTH DATE 8-13-55
EMPLOYER ROCKFORD BLACKTOP (ECE)

Respirator Compliance Letter
(for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910. 134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.

Signature of Examining Physician

11/21/01
Date

Certificate of Completion

This document attests that

Steve Palmer

has completed the course requirements for

8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor

Jack Schill
Director of Health and Safety
Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 0675



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Steve Palmer

*has complied with all requirements outlined under
29 CFR Part 1910.120*

Hazardous Waste Site Workers

Forty Hour Course

conducted by

Environmental Contractors of Illinois, Inc.



Matthew R. Kraft

E.C.I. Safety Instructor

8-3-1995

Date Certificate Issued

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Steve Palmer

*has complied with all requirements outlined under
29 CFR Part 1910.120*

*Hazardous Waste Site Workers
Eight Hour Refresher Course*

*conducted by
Environmental Contractors of Illinois, Inc.*

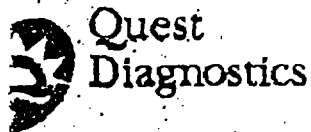


Matt W. Rasmussen

E.C.I. Safety Instructor

March 29, 2001

Date Certificate Issued



REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5917 (Regional Laboratory)

1-800-831-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 14D0417052
MEDICARE CERTIFICATE: 14-8229

ILMER, STEVE A			FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO. 40011649 ROUTE/STOP 101163X	
AGE	PATIENT NO.	DRAWN DATE AND TIME	PARTIAL REPORT <input type="checkbox"/>		MEDWORKS SOUTH SHARON KAPPEE 1335 CHARLES ST. ROCKFORD, IL 61104	
SN NO. 233021	HOSP. NO.	DOCTOR	RECEIVED DATE 11/21/2001		REPORT DATE AND TIME 11222001 6:26AM	

TEST NAME	RESULTS		UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE	OUTSIDE REFERENCE RANGE		

Client Site Location: ENVCONTR - ENVIRONMENTAL CONTRACTORS, INC

REASON FOR TEST: PRE-EMPLOYMENT

DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR:

MEDWORKS SOUTH - 40011649

SHARON KAPPEE

1335 CHARLES ST.

ROCKFORD, IL 61104

Tests Ordered: 35103N (SAP S-50 W/NIT)

Integrity Checks

Acceptable Range

CREATININE

178.4 mg/dL

>20 mg/dL

NITRITES

Negative

H

S.A

4.5-9.0

Distance Abuse Panel

Initial
Test Level

GC/MS Confirm
Test Level

AMPHETAMINES

Negative

1000 ng/mL

500 ng/mL

COCAINE METABOLITES

Negative

300 ng/mL

150 ng/mL

MARIJUANA METABOLITES

Negative

50 ng/mL

15 ng/mL

SPIRATES

Negative

2000 ng/mL

2000 ng/mL

PHENCYCLIDINE

Negative

25 ng/mL

25 ng/mL

CERTIFYING SCIENTIST: KATHY KEDDH

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAUMBURG DHHS CERTIFIED LABORATORY.

)) END OF REPORT ((



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME Steve Palmer DATE 11/21/01
SOCIAL SECURITY NUMBER: 338 - 54 - 1345 BIRTH DATE 9/28/56
EMPLOYER Rockford Blacktop Co.

Respirator Compliance Letter (for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910.134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.

[Signature]
Signature of Examining Physician

11/21/01
Date

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company ECI Fax _____

FITNESS FOR DUTY RESULTS

Steve Palmer was evaluated for fitness for work.
The results indicated that this person:

**THESE RESULTS ARE ISSUED WITH DRUG TESTING &
X-RAY REPORTS PENDING.**

☒ IS FIT FOR DUTY

☐ May Commence Work Provided The Following Restrictions Can Be Met Through Reasonable Accommodation Or Do Not Interfere With The Performance Of Essential Functions Of The Job.

RESTRICTION: _____

☐ Has A Medical Condition Which Poses A Direct Threat To The Health And Safety Of The Person Or Others.

☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of The Americans With Disabilities Act.

Signature of Physician [Signature]

Date 11/21/01

MSA Qualitative Fit Test Record

Subject's Name DARYL STREED Department ECI

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Test Results:

1. Facial Characteristic Assessment. Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test ☒ Passed

☐ Failed

3. Fit Test Small Standard Large

Passed _____ X _____

Failed _____ _____

RESPIRATOR ASSIGNED: MSA

Spectacle Kit Required? ☐ YES ☒ NO

Mark W. Keith 11-20-01
Test Administrator's Signature Test Date

Daryl Streed
Employee's Signature Date

This is to certify that

DARYL STREED

☐ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Expiration Date _____

11-20-01 Mark W. Keith

Test Date Instructor

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Certificate of Completion

This document attests that

Lynne Paulli

has completed the course requirements for


8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor


Director of Health and Safety
Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 0190



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units



FERGUSON • HARBOUR
I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT
to

Lynne Paulli

for successful completion of

**8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120**

February 9th, 2001

Training Director- Turner Davidson

Instructor- Turner Davidson

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Lynne Paulli

*has complied with all requirements outlined under
29 CFR Part 1910.120*

Hazardous Waste Site Workers

Forty Hour Course

conducted by

Environmental Contractors of Illinois, Inc.



Edmund S. Whittington
E.C.I. Safety Instructor

December 4, 1992
Date Certificate Issued

MSA Qualitative Fit Test Record

Subject's Name LYNNE PAULLI Department ECT

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☐ Std ☐ Lg

Test Results:

1. Facial Characteristic Assessment. Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test

☒ Passed

☐ Failed

3. Fit Test

Small

Standard

Large

Passed

☒

Failed

RESPIRATOR ASSIGNED: APV

Spectacle Kit Required? ☐ YES ☒ NO

Walter L. Kuntz 11-20-01
Test Administrator's Signature Test Date

Lynne Paulli 11-20-01
Employee's Signature Date

This is to certify that

LYNNE PAULLI

Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Expiration Date

11-20-01

Walter L. Kuntz

Test Date

Instructor

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Bulletin No. 1000-26-TAL

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Printed in USA 9512 (L)

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company ECI Fax _____
Attn: _____

FITNESS FOR DUTY RESULTS

Randall Price was evaluated for fitness for work.
The results indicated that this person:

**THESE RESULTS ARE ISSUED WITH DRUG TESTING &
X-RAY REPORTS PENDING.**

☒ IS FIT FOR DUTY

☐ May Commence Work Provided The Following Restrictions Can Be Met
Through Reasonable Accommodation Or Do Not Interfere With The
Performance Of Essential Functions Of The Job.

RESTRICTION: _____

☐ Has A Medical Condition Which Poses A Direct Threat To The Health And
Safety Of The Person Or Others.

☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of
The Americans With Disabilities Act.

[Signature]
Signature of Physician

11/21/01
Date



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME RANDALL C. PRICE DATE 11-21-01
SOCIAL SECURITY NUMBER: 354-64-1953 BIRTH DATE 10-2-64
EMPLOYER E.C.I./ROCKFORD BLACKTOP

Respirator Compliance Letter (for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910.134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



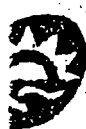
Requires a respirator which allows for the wearing of corrective lenses.



Physician of Examining Physician

11/21/01

Date



**Quest
Diagnostics**

REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-923-5917 (Regional Laboratory)

1-800-831-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 1400417052
MEDICARE CERTIFICATE: 14-8229

PATIENT NAME RICE, RANDALL C			FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO. 40011649		ROUTE/STOP 101163X	
AGE	PATIENT ID	DRAWN DATE AND TIME	PARTIAL REPORT <input type="checkbox"/>		MEDWORKS SOUTH			
	354641953	11/21/2001			SHARON KAPPEL			
WENR	HOSP. NO.	DOCTOR	RECEIVED DATE		1335 CHARLES ST.			
233026			11/21/2001		ROCKFORD, IL 61104			
REPORT DATE AND TIME 11/22/2001 6:27AM								

TEST NAME	RESULTS		UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE	OUTSIDE REFERENCE RANGE		

Client Site Location: ENVCONTR - ENVIRONMENTAL CONTRACTORS, INC

REASON FOR TEST: PRE-EMPLOYMENT

DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR:

MEDWORKS SOUTH - 40011649

SHARON KAPPEL

1335 CHARLES ST.

ROCKFORD, IL 61104

Tests Ordered: 35105N (SAP 5-50 W/NIT)

Integrity Checks

Acceptable Range

CREATININE

64.6 mg/dL

>20 mg/dL

NITRITES

Negative

pH

7.1

4.5-9.0

Substance Abuse Panel

Initial
Test Level

GC/MS Confirm
Test Level

AMPHETAMINES

Negative

1000 ng/mL

500 ng/mL

COCAINE METABOLITES

Negative

300 ng/mL

150 ng/mL

MARIJUANA METABOLITES

Negative

50 ng/mL

15 ng/mL

OPIATES

Negative

2000 ng/mL

2000 ng/mL

PHENCYCLIDINE

Negative

25 ng/mL

25 ng/mL

CERTIFYING SCIENTIST: GRACE LEE

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAUMBURG DHHS CERTIFIED LABORATORY.

>> END OF REPORT <<



FERGUSON • HARBOUR

I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT

to

Randy Price

for successful completion of

***8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120***

February 9th, 2001

Training Director- Turner Davidson

Instructor- Turner Davidson

Certificate of Completion

This document attests that

Randall Price

has completed the course requirements for

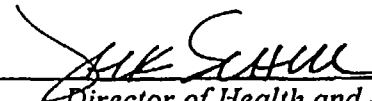
8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor



Director of Health and Safety

Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 0129



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units

**ENVIRONMENTAL
SERVICES INC.**

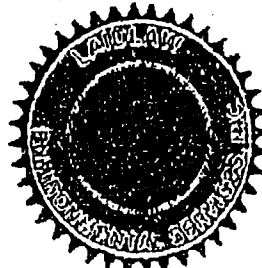
Certificate of Training

This is to certify that

RANDALL C. PRICE

has successfully completed a course of instruction in
health, safety, and the management of hazardous materials,
waste, and substances, meeting the requirements
of : 29 CFR 1910.120 (40 Hour Course)

Certificate Number:
90-40-0421



MAY 29, 1991

Date

Steven Zaleski
Steven Zaleski
Technical Training Supervisor

MSA Qualitative Fit Test Record

Subject's Name RANDY PRICE Department ECT

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Test Results:

1. Facial Characteristic Assessment. Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test ☒ Passed

☐ Failed

3. Fit Test

Small

Standard

Large

Passed

X

Failed

RESPIRATOR ASSIGNED: MPR

Spectacle Kit Required? ☐ YES ☒ NO

Mark McKen 11-20-01
Test Administrator's Signature Test Date

Randy Price 11-20-01
Employee's Signature Date

This is to certify that

RANDY PRICE

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Expiration Date

11-20-01

Instructor

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Certificate of Completion

This document attests that

Jeff Rohl

has completed the course requirements for

8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor



Director of Health and Safety

Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 0284



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Jeff Rohl

*has complied with all requirements outlined under
29 CFR Part 1910.120*

Hazardous Waste Site Workers

Forty Hour Course

conducted by

Environmental Contractors of Illinois, Inc.



Walter M. Keith

E.C.I. Safety Instructor

8-3-1995

Date Certificate Issued



FERGUSON • HARBOUR

I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT
to

Jeff Rohl

for successful completion of

8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120

February 9th, 2001

Training Director- Turner Davidson

Instructor- Turner Davidson



**Quest
Diagnostics**

REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5917 (Regional Laboratory)

1-800-631-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 1400417022
MEDICARE CERTIFICATE: 14-8228

PATIENT NAME NOHL, JEFFERY A			FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO. 40011649		ROUTE/STOP 101163X	
AGE	PATIENT ID 339508124	DRAWN DATE AND TIME 11/21/2001		PARTIAL REPORT <input type="checkbox"/>		MEDWORKS SOUTH		
LABORATORY NO. 3233016	HOSP. NO.	DOCTOR		RECEIVED DATE 11/22/2001		SHARON KAPPES		
						1335 CHARLES ST. ROCKFORD, IL 61104		
VENTS						REPORT DATE AND TIME 11/22/2001 6:26AM		

TEST NAME	RESULTS		UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE	OUTSIDE REFERENCE RANGE		

Client Site Location: ENVCONTR - ENVIRONMENTAL CONTRACTORS, INC

REASON FOR TEST: PERIODIC/MEDICAL DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR: MEDWORKS SOUTH - 40011649
SHARON KAPPES
1335 CHARLES ST.
ROCKFORD, IL 61104

Tests Ordered: 33105N (SAP 5-50 W/NIT)

Integrity Checks

Acceptable Range

CREATININE	209.2 mg/dL	>20 mg/dL
NITRITES	Negative	
pH	7.3	4.5-9.0

Substance Abuse Panel

		Initial Test Level	GC/MS Confirm Test Level
AMPHETAMINES	Negative	1000 ng/mL	500 ng/mL
COCAINE METABOLITES	Negative	300 ng/mL	150 ng/mL
MARIJUANA METABOLITES	Negative	50 ng/mL	15 ng/mL
OPiates	Negative	2000 ng/mL	2000 ng/mL
PHENCYCLIDINE	Negative	25 ng/mL	25 ng/mL

CERTIFYING SCIENTIST: GRACE LEE

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAMBURG DHHS CERTIFIED LABORATORY.

>> END OF REPORT <<



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME Jeff Rely DATE 11-21-01
SOCIAL SECURITY NUMBER: 339-50-924 BIRTH DATE 8-9-56
EMPLOYER ECI

Respirator Compliance Letter
(for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910.134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.

[Signature]
Signature of Examining Physician

11/21/01
Date

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company ECI Fax _____
Addr. _____

FITNESS FOR DUTY RESULTS

Geddy Robb was evaluated for fitness for work.
The results indicated that this person:

**THESE RESULTS ARE ISSUED WITH DRUG TESTING &
X-RAY REPORTS PENDING.**

☒ IS FIT FOR DUTY

- ☐ May Commence Work Provided The Following Restrictions Can Be Met Through Reasonable Accommodation Or Do Not Interfere With The Performance Of Essential Functions Of The Job.

RESTRICTION: _____

- ☐ Has A Medical Condition Which Poses A Direct Threat To The Health And Safety Of The Person Or Others.
- ☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of The Americans With Disabilities Act.

[Signature]
Signature of Physician

11/21/01
Date

MSA Qualitative Fit Test Record

Subject's Name JEFF ROHL Department ECI

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☐ Std ☒ Lg

Test Results:

1. **Facial Characteristic Assessment.** Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test ☒ Passed

☐ Failed

3. Fit Test

Small

Standard

Large

Passed

X

Failed

RESPIRATOR ASSIGNED: yes

Spectacle Kit Required? ☐ YES ☒ NO

Matt M. Kuntz
Test Administrator's Signature

11-20-01
Test Date

J. Rohl
Employee's Signature

11-20-01
Date

This is to certify that

JEFF ROHL

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☒ Lg

Expiration Date _____

11-20-01

Matt M. Kuntz

Test Date

Instructor

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Certificate of Completion

This document attests that

Steve Saunders

has completed the course requirements for


8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor


Director of Health and Safety
Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 5010



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Steve Saunders

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Forty Hour Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matt McKitt

E.C.I. Safety Instructor

Feb. 5, 1997

Date Certificate Issued



FERGUSON • HARBOUR

I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT
to

Steve Saunders

for successful completion of

**8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120**

February 9th, 2001

Training Director- Turner Davidson

Instructor- Turner Davidson

NOV-27-01 TUE 03:45 PM
NOV-27-01 TUE 03:06 PM

FAX NO. 815 227 4700

P.06



1336 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME Steve Saunders DATE 11-22-01
SOCIAL SECURITY NUMBER 333-60-1269 BIRTH DATE 05-25-58
EMPLOYER ENVIRONMENTAL CONTRACTORS OF ILL.

Respirator Compliance Letter
(for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910.134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.


Signature of Examining Physician

11/21/01
Date

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company E.C.I. Fax _____

Attn.: _____

FITNESS FOR DUTY RESULTS

Steven Saunders was evaluated for fitness for work.
The results indicated that this person:

**THESE RESULTS ARE ISSUED WITH DRUG TESTING &
X-RAY REPORTS PENDING.**

☒ IS FIT FOR DUTY

☐ May Commence Work Provided The Following Restrictions Can Be Met
Through Reasonable Accommodation Or Do Not Interfere With The
Performance Of Essential Functions Of The Job.

RESTRICTION: _____

☐ Has A Medical Condition Which Poses A Direct Threat To The Health And
Safety Of The Person Or Others.

☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of
The Americans With Disabilities Act.

gsl
Signature of Physician

11/21/01
Date

MSA Qualitative Fit Test Record

Subject's Name STEVE PALMER Department ECL

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Test Results:

1. **Facial Characteristic Assessment.** Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. **Sensitivity Test** ☒ Passed

☐ Failed

3. **Fit Test**

Small

Standard

Large

Passed

☒

Failed

RESPIRATOR ASSIGNED: MSA

Spectacle Kit Required? ☐ YES ☒ NO

Test Administrator's Signature Matt McKee

Test Date 11-20-01

Employee's Signature Steve Palmer

Date 11-20-01

This is to certify that

STEVE PALMER

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Expiration Date

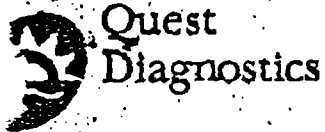
11-20-01

Matt McKee

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.



REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5917 (Regional Laboratory)

1-800-831-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 14D0417052
MEDICARE CERTIFICATE: 14-8228

BLUNDERS, STEVEN D			FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO. 40011549 ROUTE 5707	
AGE	PATIENT ID	DRAWN DATE AND TIME	PARTIAL REPORT <input type="checkbox"/>		101163X	
	333601269	11/21/2001			MEDWORKS SOUTH	
ENR NO.	HOSP. NO.	DOCTOR	RECEIVED DATE		SHARON KAPRES	
3233019			11/22/2001		1335 CHARLES ST.	
					ROCKFORD, IL 61104	
					REPORT DATE AND TIME	
					11/23/2001 6:44PM	

TEST NAME

RESULTS

UNIT OF MEASURE

REFERENCE RANGE

WITHIN REFERENCE RANGE OUTSIDE REFERENCE RANGE

Client Site Location: ENVCONTR - ENVIRONMENTAL CONTRACTORS, INC

REASON FOR TEST: PRE-EMPLOYMENT

DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR:

MEDWORKS SOUTH - 40011549

SHARON KAPRES

1335 CHARLES ST.

ROCKFORD, IL 61104

Tests Ordered: 35190N (SAP 10-50 W/NIT)

Integrity Checks

Acceptable Range

CREATININE

193.1 mg/dL

>20 mg/dL

NITRITES

Negative

pH

5.9

4.5-9.0

Substance Abuse Panel

Initial Test Level

GC/MS Confirm Test Level

AMPHETAMINES	Negative	1000 ng/mL	500 ng/mL
BARBITURATES	Negative	300 ng/mL	200 ng/mL
BENZODIAZEPINES	Negative	300 ng/mL	200 ng/mL
COCAINE METABOLITES	Negative	300 ng/mL	150 ng/mL
MARIJUANA METABOLITES	Negative	50 ng/mL	15 ng/mL
METHADONE	Negative	300 ng/mL	200 ng/mL
METHAQUALONE	Negative	300 ng/mL	200 ng/mL
OPIATES	Negative	2000 ng/mL	2000 ng/mL
PHENCYCLIDINE	Negative	25 ng/mL	25 ng/mL
PROPOXYPHENE	Negative	300 ng/mL	200 ng/mL

CERTIFYING SCIENTIST: KATHY KEOGH

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAUMBURG DHHS CERTIFIED LABORATORY.

)) END OF REPORT ((

MSA Qualitative Fit Test Record

Subject's Name STEVE SAUNDERS Department ECI

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Test Results:

1. **Facial Characteristic Assessment.** Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test

☒ Passed

☐ Failed

3. Fit Test

Small

Standard

Large

Passed

X

Failed

RESPIRATOR ASSIGNED: _____

Spectacle Kit Required?

☐ YES

☐ NO

Mark W. Kist
Test Administrator's Signature

11-20-01
Test Date

Steve Saunders
Employee's Signature

11-20-01
Date

This is to certify that

STEVE SAUNDERS

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Expiration Date

11-20-01

Mark W. Kist
Instructor

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Certificate of Completion

This document attests that

Daryl L. Streed

has completed the course requirements for

8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor

Director of Health and Safety
Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 0067



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Daryl Streed

*has complied with all requirements outlined under
29 CFR Part 1910.120*

Hazardous Waste Site Workers

Forty Hour Course

conducted by

Environmental Contractors of Illinois, Inc.



Walter R. Knott

E.C.I. Safety Instructor

8-3-1995

Date Certificate Issued



FERGUSON • HARBOUR

I N C O R P O R A T E D

presents this

CERTIFICATE OF ACHIEVEMENT
to

Daryl Streed

for successful completion of

**8 hour HAZWOPER Refresher Training
as per 29 CFR 1910.120**

February 9th, 2001

Training Director- Turner Davidson

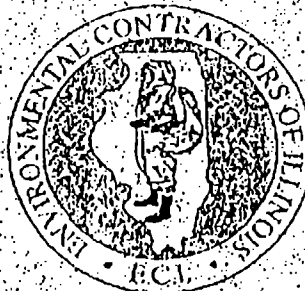
Instructor- Turner Davidson

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Ken Taggart

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Forty Hour Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matt W. Knott
E.C.I. Safety Instructor

March 26, 1999

Date Certificate Issued

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Ken Taggart

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Eight Hour Refresher Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matt R. Knott

E.C.I. Safety Instructor

February 16, 2001

Date Certificate Issued

DEC 19 2001

SWEDISHAMERICAN
MEDWORKS

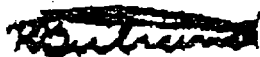
Company Risk Management
Attn: Julie
Fax: 397-8353

DOT Drug test results. Original hard copy will follow in the mail.

Date tested: 12-18-01
Patient SS#: 359-58-2467

This specimen has been tested and found to be NEGATIVE.

Other results: EBT X
exam X
sight X
audio X



Dr Robert Bertrand, MD/MRO
sk

1335 Charles Street, Rockford, Illinois 61104-2267 Phone (815) 227-4700 Fax (815) 227-4726 391-5032

E-mail oocmed@swedishamerican.org www.swedishamerican.org

A Subsidiary Of SwedishAmerican Health System

P.2

DEC 19 01 10:51AM MEDWORKS NORTH

KT

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Martin Viveros

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Eight Hour Refresher Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matt W. Kott

E.C.I. Safety Instructor

February 16, 2001

Date Certificate Issued

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Martin Viveros

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Forty Hour Course
conducted by
Environmental Contractors of Illinois, Inc.*



Math W. Kraft
E.C.I. Safety Instructor

March 24, 2000

Date Certificate Issued

Certificate of Completion

This document attests that

Dwaine White

has completed the course requirements for

8-Hour Hazardous Waste Operations

Health and Safety Refresher

in accordance with 29 CFR 1910.120(e)

Jack T. Schill

Instructor

Director of Health and Safety
Jack Schill, CIH, CSP

February 7, 2002
Rockford, Illinois
Employee No. 0482



Black & Veatch
Special Projects Corp.

0.8 Continuing Education Units

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Dwaine White

*has complied with all requirements outlined under
29 CFR Part 1910.120
Hazardous Waste Site Workers
Eight Hour Refresher Course
conducted by
Environmental Contractors of Illinois, Inc.*



Matthew W. Vint
E.C.I. Safety Instructor

March 29, 2001

Date Certificate Issued



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME Dwayne White DATE 11-20-01
SOCIAL SECURITY NUMBER: 482-66-8017 BIRTH DATE 9-6-52
EMPLOYER Rockford Blacktop

Respirator Compliance Letter (for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910.134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:




Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.


Signature of Examining Physician

11/20/01
Date

MEDWORKS



Occupational Care Center

1335 Charles St.
Rockford, IL 6114
(815)227-4700
Fax (815)227-4726

Company ECI Fax _____
Attn: _____

FITNESS FOR DUTY RESULTS

Duraine White was evaluated for fitness for work.
The results indicated that this person:

THESE RESULTS ARE ISSUED WITH DRUG TESTING & X-RAY REPORTS PENDING.

☒ IS FIT FOR DUTY

☐ May Commence Work Provided The Following Restrictions Can Be Met Through Reasonable Accommodation Or Do Not Interfere With The Performance Of Essential Functions Of The Job.

RESTRICTION: _____

☐ Has A Medical Condition Which Poses A Direct Threat To The Health And Safety Of The Person Or Others.

☐ Has A Medical Condition Which Is Disqualifying Under The Provisions Of The Americans With Disabilities Act.

[Signature]
Signature of Physician

11/20/01
Date

MSA Qualitative Fit Test Record

Subject's Name Dwaine White Department ECI

Employee Number 487

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☒ Advantage 1000 3200 TRM

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☐ Ultra-Twin

Other _____ ☐ Sm ☐ Std ☐ Lg

Test Results:

1. **Facial Characteristic Assessment.** Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test

☒ Passed

☐ Failed

3. Fit Test

Small

Standard

Large

Passed

Failed

RESPIRATOR ASSIGNED:

Advantage 3200 Medium

Spectacle Kit Required?

☐ YES

☐ NO

Test Administrator's Signature

Test Date

Employee's Signature

Date

This is to certify that

Dwaine White

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☒ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☐ Ultra-Twin

Other _____ ☐ Sm ☐ Std ☐ Lg

Expiration Date 12-12-02

12-12-01

Test Date

Instructor

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by CSHA protocol such as that published in 29 CFR 1910.3025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Bulletin No. 1000-25-TAL

© MSA, 1995

Printed in USA 9512 (L)

MSA Qualitative Fit Test Record

Subject's Name DEWAYNE WHITE Department ECL

Employee Number _____

Has the employee received respirator training? ☒ YES ☐ NO

Type of Respirator Fit Test Used: ☒ Irritant Fume ☐ IsoAmyl Acetate ☐ Saccharin

Respirator Tested: ☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Test Results:

1. Facial Characteristic Assessment. Respirators with tight-fitting facepieces may not provide a satisfactory seal with individuals having beards, large side burns or other conditions such as missing dentures, etc. that could interfere with the ability of the respirator to attain an adequate seal. Individuals with this condition should not be tested. Did any conditions described above exist?

☐ YES. Do not continue test. Automatic failure.

☒ NO. Continue with test.

2. Sensitivity Test

☒ Passed

☐ Failed

3. Fit Test

Small

Standard

Large

Passed

X

Failed

RESPIRATOR ASSIGNED: MP

Spectacle Kit Required? ☐ YES ☒ NO

Matt L. Keith
Test Administrator's Signature

11-20-01
Test Date

Dewayne White
Employee's Signature

11-20-01
Date

This is to certify that

DEWAYNE WHITE

☒ Has been trained in the use, limitations, and maintenance of MSA Respirator(s).

☒ Has passed a Qualitative Fit Test with MSA Respirator(s).

☐ Comfo Classic ☐ Advantage 100 ☐ Advantage 1000

☐ Comfo II ☐ Comfo Elite ☐ Ultra Elite ☒ Ultra-Twin

Other _____ ☐ Sm ☒ Std ☐ Lg

Expiration Date

11-20-01

Matt L. Keith

Test Date

Testator

MSA Count on MSA

Call toll free at 1-800-MSA-2222

NOTE: This document provides a means for recording qualitative fit test results on the named subject with the indicated respirator under controlled conditions established by OSHA protocol such as that published in 29 CFR 1910.1025 Appendix D. MSA and the test administrator do not express or imply any guarantee that the fit obtained in this test is reproducible in actual use situations under conditions other than those present when the test was performed.

Subject: 1000-26-TAL

© MSA, 1995

Printed in USA 5512 (L)

ENVIRONMENTAL CONTRACTORS OF ILLINOIS, INC.

*This Certificate of Achievement
is to acknowledge that*

Dwaine White

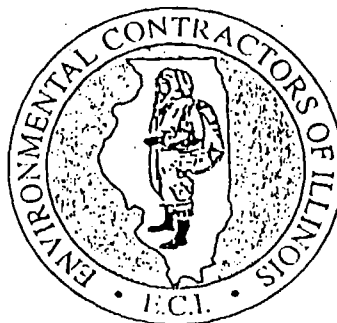
*has complied with all requirements outlined under
29 CFR Part 1910.120*

Hazardous Waste Site Workers

Forty Hour Course

conducted by

Environmental Contractors of Illinois, Inc.



Walter R. Kutt

E.C.I. Safety Instructor

Feb. 5, 1997

Date Certificate Issued



1335 Charles Street Rockford, Illinois 61104-2267 815-227-4700 Fax 815-227-4726

RESPIRATORY COMPLIANCE LETTER

NAME Dwaine White DATE 11-20-01
SOCIAL SECURITY NUMBER 4182-66-8017 BIRTH DATE 9-6-52
EMPLOYER Rockford Blacktop

Respirator Compliance Letter (for Respiratory Compliance Evaluation)

TO WHOM IT MAY CONCERN:

This letter is in accordance with OSHA regulation 29 CFR 1910.134 which states that a medical evaluation is needed to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

This medical status of the employee named above has been evaluated and the individual:



Is qualified to use a respirator.



Is NOT qualified to use a respirator.



Requires a respirator which allows for the wearing of corrective lenses.

A handwritten signature in black ink, appearing to be "B. White", written over a horizontal line.

Signature of Examining Physician

11/20/01
Date

**Quest
Diagnostics****REGIONAL LABORATORY FACILITY**

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5917 (Regional Laboratory)

1-800-631-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Dax Taylor, M.D.
D. DAX TAYLOR, M.D.*Delbert A. Fisher, M.D.*
DELBERT A. FISHER, M.D.CLIA REGISTRATION: 14D0417052
MEDICARE CERTIFICATE: 14-B228

, DWAIN		FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO.	ROUTESTOP
PATIENT ID	DRAWN DATE AND TIME	PARTIAL REPORT <input type="checkbox"/>		40011649	101163X
482668017	11/20/2001			MEDWORKS SOUTH	
HOSP. NO.	DOCTOR	RECEIVED DATE		SHARON KAPRES	
Q29		11/20/2001		1335 CHARLES ST.	
				ROCKFORD, IL 61104	
				REPORT DATE AND TIME	
				11/21/2001 6:39AM	

TEST NAME	RESULTS	UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE		OUTSIDE REFERENCE RANGE

Client Site Location: ENVCONTR - ENVIRONMENTAL CONTRACTORS, INC

REASON FOR TEST: PERIODIC

DONOR ID VERIFIED: PHOTO I.D.

REPORT FOR:

MEDWORKS SOUTH - 40011649
SHARON KAPRES
1335 CHARLES ST.
ROCKFORD, IL 61104

Tests Ordered: 35105N (SAP 5-50 W/NIT)

Integrity Checks**Acceptable Range**

CREATININE
NITRITES
pH

237.3 mg/dL
Negative
5.5

>20 mg/dL
4.5-9.0

Substance Abuse Panel

Initial
Test Level

GC/MS Confirm
Test Level

AMPHETAMINES
COCAINE METABOLITES
MARIJUANA METABOLITES
OPIATES
PHENCYCLIDINE

Negative
Negative
Negative
Negative
Negative

1000 ng/mL
300 ng/mL
50 ng/mL
2000 ng/mL
25 ng/mL

300 ng/mL
150 ng/mL
15 ng/mL
2000 ng/mL
25 ng/mL

CERTIFYING SCIENTIST: KATHY KEOGH

SPECIMEN RECEIVED AND PROCESSED IN THE SCHAUMBURG DHS CERTIFIED LABORATORY.

>> END OF REPORT <<

ATTACHMENT L

Tailgate Safety Meeting Form

DAILY TAILGATE/SAFETY MEETING
ECI JOB #15506 – GRIFFITH, INDIANA

_____ *Date*

ATTENDANCE

NAME	COMPANY	NAME	COMPANY

COMMENTS



HEAVY EQUIPMENT SAFE PRACTICES

The primary sources of injury to operators and other personnel working around heavy equipment are:

1. Repairing and servicing equipment in dangerous positions.
2. Striking individuals or other vehicles with the equipment, particularly its blade.
3. Unexpected violent tipping of the equipment.
4. Uncontrolled traffic within or through the work area.
5. Unexpected violent shocks or jars to the machine.
6. Sudden movement of a power unit while it is being attached to earth moving equipment.
7. Limbs of trees or overhead obstructions.
8. Leaving earth moving or other equipment in dangerous positions while unattended.
9. Failure of lifting mechanisms.

GENERAL OPERATING PRECAUTIONS:

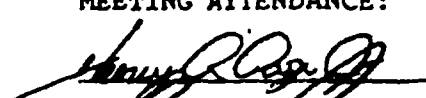
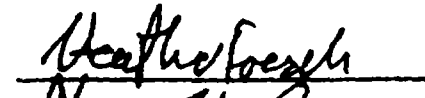




1. Machines should be maintained in good working order. All vital parts such as motors, chassis, blades, bladeholders, tracks, drives, hydraulic and pneumatic mechanisms, and transmissions should be thoroughly inspected each day.
2. Before starting a job, the operator should be given instructions regarding the work to be done.
3. Before using the starting motor, the operator should check to make sure that all operating controls are in the neutral position.
4. Machines should be operated at speeds and in a manner consistent with conditions on the particular job.
5. At no time should a piece of equipment be left unattended while the motor is running, especially if the machine is on an inclined surface or on loose material.
6. If possible, equipment should be driven entirely off the road at night. When any portion of the machine projects into the road, it should be adequately marked with red lights or flares. Red flags should be used in daytime.
7. Personnel should stop motors and refrain from smoking during refueling operations.
8. The operator should keep deck plates or steps on equipment free from grease, oil, ice and mud. Corded sole shoes are recommended.

9. Employees, other than operator, should not ride on equipment.
10. Operators should not wear loose clothing, which can get caught in moving parts of equipment.

DATE COMPLETED 5-7

TIME SPENT ON TALK: 10 MIN.

MEETING ATTENDANCE:

		_____
		_____
	_____	_____
	_____	_____

SUPERVISOR: KEN WESTRAAL